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<b>(54) Title:</b> HUMAN PROSTATE CANCER ASSOCIATED GENE SEQUENCES AND POLYPEPTIDES			
<b>(57) Abstract</b>  This invention relates to newly identified prostate or prostate cancer related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "prostate cancer antigens", and to the complete gene sequences associated therewith and to the expression products thereof, as well as the use of such prostate cancer antigens for detection, prevention and treatment of disorders of the prostate, particularly the presence of prostate cancer. This invention relates to the prostate cancer antigens as well as vectors, host cells, antibodies directed to prostate cancer antigens and recombinant and synthetic methods for producing the same. Also provided are diagnostic methods for diagnosing and treating, preventing and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and/or function of the polypeptides of the present invention.			

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## Human Prostate Cancer Associated Gene Sequences and Polypeptides

### 5 *Field of the Invention*

This invention relates to newly identified prostate or prostate cancer related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "prostate cancer antigens," and to the complete gene sequences associated therewith and to the expression products thereof, as well as the use of such prostate cancer antigens for detection, prevention and treatment of disorders of the prostate, particularly the presence of prostate cancer. This invention relates to the prostate cancer antigens as well as vectors, host cells, antibodies directed to prostate cancer antigens and recombinant and synthetic methods for producing the same. Also provided are diagnostic methods for diagnosing and treating, preventing and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and/or function of the polypeptides of the present invention.

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### *Background of the Invention*

Cell growth is a carefully regulated process which responds to specific needs of the body. Occasionally, the intricate, and highly regulated controls dictating the rules for cellular division break down. When this occurs, the cell begins to grow and divide independently of its homeostatic regulation resulting in a condition commonly referred to as cancer. In fact, cancer is the second leading cause of death among Americans aged 25-44.

Prostate cancer has become the most common cancer among American men, and only lung cancer is responsible for more cancer deaths (Boring, Cancer Statistics, 41:19-36 (1991)). The age specific mortality rate has slowly increased over the past 50 years and in black American men is nearly double the rate found in white men (Carter, Prostate,

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16:39-48 (1990)). Prostate cancer is responsible for nearly three percent of all deaths in men over the age of 55 years (Seidman, et al., Probabilities of Eventually Developing or Dying of Cancer-United States, 35:36-56 (1985)). Since the incidence of prostate cancer increases more rapidly with age than any other cancer, and the average age of American men is rising, the number of patients with prostate cancer is expected to increase dramatically over the next decade.

Approximately 30% of men with prostate cancer have distant metastases at the time of diagnosis (Schmidt, et al., J. Urol., 136:416-421 (1986)). Despite the impressive symptomatic response of metastases to hormonal manipulation (androgen deprivation), the survival rate for these patients is dismal: the median duration of survival is less than three years (Eyar, Urologic Pathology: The Prostate, Philadelphia, Pa., Lea and Febiger, 241-267 (1977)). By five years, over 75% and by ten years, more than 90% of these patients die of their cancer rather than with it (Silverberg, Cancer, 60:692-717 (1987) (Suppl.)). The problem with prostate cancer is that many forms of prostate cancer are latent, in other words, such forms are difficult to detect. Approximately 30% of the men over the age of 50 years who have no clinical evidence of prostate cancer harbor foci of cancer within the prostate (McNeal, et al., The Lancet, January, 11:60-63 (1986)). This remarkably high prevalence of prostate cancer at autopsy, seen in no other organ, makes it the most common malignancy in human beings (Dhom, J. Cancer Res. Clin. Oncol., 106:210-218 (1983)). There is strong support for the concept of multi-step process in the pathogenesis of prostate cancer in which latent cancers progress through some but not all of the steps necessary for full malignant expression (Utter, et al., J. Urol., 143:742-746 (1990)).

There are a variety of techniques for early detection and characteristics of prostate cancers, however, none of them are devoid of problems. Prostate cancer is a notoriously silent disease with few early symptoms. There is a need, therefore, for identification and characterization of factors that modulate activation and differentiation of prostate cells, both normally and in disease states. In particular, there is a need to isolate and characterize additional molecules that mediate apoptosis, DNA repair, tumor-mediated angiogenesis, genetic imprinting, immune responses to tumors and tumor antigens and, among other things, that can play a role in detecting, preventing, ameliorating or correcting dysfunctions or diseases related to the prostate.

### *Summary of the Invention*

The present invention includes isolated nucleic acid molecules comprising, or alternatively, consisting of, a prostate and/or prostate cancer associated polynucleotide sequence disclosed in the sequence listing (as SEQ ID Nos: 1 to 940) and/or contained in a human cDNA clone described in Tables 1, 2 and 5 and deposited with the American Type Culture Collection ("ATCC"). Fragments, variant, and derivatives of these nucleic acid molecules are also encompassed by the invention. The present invention also includes isolated nucleic acid molecules comprising, or alternatively consisting of, a polynucleotide encoding a prostate or prostate cancer polypeptide. The present invention further includes prostate and/or prostate cancer polypeptides encoded by these polynucleotides. Further provided for are amino acid sequences comprising, or alternatively consisting of, prostate and/or prostate cancer polypeptides as disclosed in the sequence listing (as SEQ ID Nos: 941 to 1880) and/or encoded by a human cDNA clone described in Tables 1, 2 and 5 and deposited with the ATCC. Antibodies that bind these polypeptides are also encompassed by the invention. Polypeptide fragments, variants, and derivatives of these amino acid sequences are also encompassed by the invention, as are polynucleotides encoding these polypeptides and antibodies that bind these polypeptides. Also provided are diagnostic methods for diagnosing and treating, preventing, and/or prognosing disorders related to the prostate, including prostate cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of prostate cancer antigens of the invention.

### *Detailed Description*

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#### **Tables**

Table 1 summarizes some of the prostate cancer antigens encompassed by the invention (including contig sequences (SEQ ID NO:X) and the cDNA clone related to the contig sequence) and further summarizes certain characteristics of the prostate cancer polynucleotides and the polypeptides encoded thereby. The first column shows the "SEQ ID NO:" for each of the 940 prostate cancer antigen polynucleotide sequences of the invention. The second column provides a unique "Sequence/Contig ID" identification for

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each prostate and/or prostate cancer associated sequence. The third column, "Gene Name," and the fourth column, "Overlap," provide a putative identification of the gene based on the sequence similarity of its translation product to an amino acid sequence found in a publicly accessible gene database and the database accession no. for the database sequence having similarity, respectively. The fifth and sixth columns provide the location (nucleotide position nos. within the contig), "Start" and "End", in the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred ORF shown in the sequence listing as SEQ ID NO:Y. The seventh and eighth columns provide the "% Identity" (percent identity) and "% Similarity" (percent similarity), respectively, observed between the aligned sequence segments of the translation product of SEQ ID NO:X and the database sequence. The ninth column provides a unique "Clone ID" for a cDNA clone related to each contig sequence.

Table 2 summarizes ATCC Deposits, Deposit dates, and ATCC designation numbers of deposits made with the ATCC in connection with the present application.

Table 3 indicates public ESTs, of which at least one, two, three, four, five, ten, fifteen or more of any one or more of these public EST sequences are optionally excluded from certain embodiments of the invention.

Table 4 lists residues comprising antigenic epitopes of antigenic epitope-bearing fragments present in most of the prostate or prostate cancer associated polynucleotides described in Table 1 as predicted by the inventors using the algorithm of Jameson and Wolf, (1988) Comp. Appl. Biosci. 4:181-186. The Jameson-Wolf antigenic analysis was performed using the computer program PROTEAN (Version 3.11 for the Power Macintosh, DNASTAR, Inc., 1228 South Park Street Madison, WI). Prostate and prostate cancer associated polypeptides (e.g., SEQ ID NO:Y, polypeptides encoded by SEQ ID NO:X, or polypeptides encoded by the cDNA in the referenced cDNA clone) may possess one or more antigenic epitopes comprising residues described in Table 4. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly. The residues and locations shown in column two of Table 4 correspond to the amino acid sequences for most prostate and prostate cancer associated polypeptide sequence shown in the Sequence Listing.

Table 5 shows the cDNA libraries sequenced, and ATCC designation numbers

and vector information relating to these cDNA libraries.

### **Definitions**

5 The following definitions are provided to facilitate understanding of certain terms used throughout this specification.

In the present invention, "isolated" refers to material removed from its original environment (e.g., the natural environment if it is naturally occurring), and thus is altered "by the hand of man" from its natural state. For example, an isolated polynucleotide  
10 could be part of a vector or a composition of matter, or could be contained within a cell, and still be "isolated" because that vector, composition of matter, or particular cell is not the original environment of the polynucleotide. The term "isolated" does not refer to genomic or cDNA libraries, whole cell total or mRNA preparations, genomic DNA preparations (including those separated by electrophoresis and transferred onto blots),  
15 sheared whole cell genomic DNA preparations or other compositions where the art demonstrates no distinguishing features of the polynucleotide/sequences of the present invention.

As used herein, a "polynucleotide" refers to a molecule having a nucleic acid sequence contained in SEQ ID NO:X (as described in column 1 of Table 1) or the related  
20 cDNA clone (as described in column 9 of Table 1 and contained within a library deposited with the ATCC). For example, the polynucleotide can contain the nucleotide sequence of the full length cDNA sequence, including the 5' and 3' untranslated sequences, the coding region, as well as fragments, epitopes, domains, and variants of the nucleic acid sequence. Moreover, as used herein, a "polypeptide" refers to a molecule  
25 having an amino acid sequence encoded by a polynucleotide of the invention as broadly defined (obviously excluding poly-Phenylalanine or poly-Lysine peptide sequences which result from translation of a polyA tail of a sequence corresponding to a cDNA).

In the present invention, "SEQ ID NO:X" was often generated by overlapping sequences contained in multiple clones (contig analysis). A representative clone  
30 containing all or most of the sequence for SEQ ID NO:X is deposited at Human Genome Sciences, Inc. (HGS) in a catalogued and archived library. As shown in column 9 of Table 1, each clone is identified by a cDNA Clone ID. Each Clone ID is unique to an

individual clone and the Clone ID is all the information needed to retrieve a given clone from the HGS library. In addition to the individual cDNA clone deposits, most of the cDNA libraries from which the clones were derived were deposited at the American Type Culture Collection (hereinafter "ATCC"). Table 5 provides a list of the deposited cDNA libraries. One can use the Clone ID to determine the library source by reference to Tables 2 and 5. Table 5 lists the deposited cDNA libraries by name and links each library to an ATCC Deposit. Library names contain four characters, for example, "HTWE." The name of a cDNA clone ("Clone ID") isolated from that library begins with the same four characters, for example "HTWEP07". As mentioned below, Table 1 correlates the Clone ID names with SEQ ID NOs. Thus, starting with a SEQ ID NO, one can use Tables 1, 2 and 5 to determine the corresponding Clone ID, from which library it came and in which ATCC deposit the library is contained. Furthermore, it is possible to retrieve a given cDNA clone from the source library by techniques known in the art and described elsewhere herein. The ATCC is located at 10801 University Boulevard, Manassas, Virginia 20110-2209, USA. The ATCC deposits were made pursuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure.

A "polynucleotide" of the present invention also includes those polynucleotides capable of hybridizing, under stringent hybridization conditions, to sequences contained in SEQ ID NO:X, or the complement thereof (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments described herein), and/or sequences contained in the related cDNA clone within a library deposited with the ATCC. "Stringent hybridization conditions" refers to an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C.

Also included within "polynucleotides" of the present invention are nucleic acid molecules that hybridize to the polynucleotides of the present invention at lower stringency hybridization conditions. Changes in the stringency of hybridization and signal detection are primarily accomplished through the manipulation of formamide concentration (lower percentages of formamide result in lowered stringency); salt

conditions, or temperature. For example, lower stringency conditions include an overnight incubation at 37 degree C in a solution comprising 6X SSPE (20X SSPE = 3M NaCl; 0.2M  $\text{NaH}_2\text{PO}_4$ ; 0.02M EDTA, pH 7.4), 0.5% SDS, 30% formamide, 100 ug/ml salmon sperm blocking DNA: followed by washes at 50 degree C with 1XSSPE, 0.1% SDS. In addition, to achieve even lower stringency, washes performed following stringent hybridization can be done at higher salt concentrations (e.g. 5X SSC).

Note that variations in the above conditions may be accomplished through the inclusion and/or substitution of alternate blocking reagents used to suppress background in hybridization experiments. Typical blocking reagents include Denhardt's reagent, BLOTTO, heparin, denatured salmon sperm DNA, and commercially available proprietary formulations. The inclusion of specific blocking reagents may require modification of the hybridization conditions described above, due to problems with compatibility.

Of course, a polynucleotide which hybridizes only to polyA+ sequences (such as any 3' terminal polyA+ tract of a cDNA shown in the sequence listing), or to a complementary stretch of T (or U) residues, would not be included in the definition of "polynucleotide," since such a polynucleotide would hybridize to any nucleic acid molecule containing a poly (A) stretch or the complement thereof (e.g., practically any double-stranded cDNA clone generated using oligo dT as a primer).

The polynucleotides of the present invention can be composed of any polyribonucleotide or polydeoxribonucleotide, which may be unmodified RNA or DNA or modified RNA or DNA. For example, polynucleotides can be composed of single- and double-stranded DNA, DNA that is a mixture of single- and double-stranded regions, single- and double-stranded RNA, and RNA that is mixture of single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or a mixture of single- and double-stranded regions. In addition, the polynucleotide can be composed of triple-stranded regions comprising RNA or DNA or both RNA and DNA. A polynucleotide may also contain one or more modified bases or DNA or RNA backbones modified for stability or for other reasons. "Modified" bases include, for example, tritylated bases and unusual bases such as inosine. A variety of modifications can be made to DNA and RNA; thus, "polynucleotide" embraces chemically, enzymatically, or metabolically modified forms.

In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

"SEQ ID NO:X" refers to a prostate cancer antigen polynucleotide sequence described in Table 1. SEQ ID NO:X is identified by an integer specified in column 1 of Table 1. The polypeptide sequence SEQ ID NO:Y is a translated open reading frame (ORF) encoded by polynucleotide SEQ ID NO:X. There are 940 prostate cancer antigen polynucleotide sequences described in Table 1 and shown in the sequence listing (SEQ ID NO:1 through SEQ ID NO:940). Likewise there are 940 polypeptide sequences shown in the sequence listing, one polypeptide sequence for each of the polynucleotide sequences (SEQ ID NO:941 through SEQ ID NO:1880). The polynucleotide sequences are shown in the sequence listing immediately followed by all of the polypeptide sequences. Thus, a polypeptide sequence corresponding to polynucleotide sequence SEQ ID NO:1 is the first polypeptide sequence shown in the sequence listing. The second polypeptide sequence corresponds to the polynucleotide sequence shown as SEQ ID NO:2, and so on. In other words, since there are 940 polynucleotide sequences, for any polynucleotide sequence SEQ ID NO:X, a corresponding polypeptide SEQ ID NO:Y can be determined by the formula  $X + 940 = Y$ . In addition, any of the unique "Sequence/Contig ID" defined in column 2 of Table 1, can be linked to the corresponding polypeptide SEQ ID NO:Y by reference to Table 4.

The polypeptides of the present invention can be composed of amino acids joined to each other by peptide bonds or modified peptide bonds, i.e., peptide isosteres, and may contain amino acids other than the 20 gene-encoded amino acids. The polypeptides may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. Such modifications



are well described in basic texts and in more detailed monographs, as well as in a voluminous research literature. Modifications can occur anywhere in a polypeptide, including the peptide backbone, the amino acid side-chains and the amino or carboxyl termini. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Also, a given polypeptide may contain many types of modifications. Polypeptides may be branched, for example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphatidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., Meth Enzymol 182:626-646 (1990); Rattan et al., Ann NY Acad Sci 663:48-62 (1992).)

The prostate and prostate cancer polypeptides of the invention can be prepared in any suitable manner. Such polypeptides include isolated naturally occurring polypeptides, recombinantly produced polypeptides, synthetically produced polypeptides, or polypeptides produced by a combination of these methods. Means for preparing such polypeptides are well understood in the art.

The polypeptides may be in the form of the secreted protein, including the mature form, or may be a part of a larger protein, such as a fusion protein (see below). It is often advantageous to include an additional amino acid sequence which contains secretory or

leader sequences, pro-sequences, sequences which aid in purification, such as multiple histidine residues, or an additional sequence for stability during recombinant production.

The prostate and prostate cancer polypeptides of the present invention are preferably provided in an isolated form, and preferably are substantially purified. A recombinantly produced version of a polypeptide, including the secreted polypeptide, can be substantially purified using techniques described herein or otherwise known in the art, such as, for example, by the one-step method described in Smith and Johnson, Gene 67:31-40 (1988). Polypeptides of the invention also can be purified from natural, synthetic or recombinant sources using techniques described herein or otherwise known in the art, such as, for example, antibodies of the invention raised against the polypeptides of the present invention in methods which are well known in the art.

By a polypeptide demonstrating a "functional activity" is meant, a polypeptide capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide for binding) to an anti-polypeptide antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the invention, and ability to bind to a receptor or ligand for a polypeptide.

"A polypeptide having functional activity" refers to polypeptides exhibiting activity similar, but not necessarily identical to, an activity of a polypeptide of the present invention, including mature forms, as measured in a particular assay, such as, for example, a biological assay, with or without dose dependency. In the case where dose dependency does exist, it need not be identical to that of the polypeptide, but rather substantially similar to the dose-dependence in a given activity as compared to the polypeptide of the present invention (i.e., the candidate polypeptide will exhibit greater activity or not more than about 25-fold less and, preferably, not more than about tenfold less activity, and most preferably, not more than about three-fold less activity relative to the polypeptide of the present invention).

The functional activity of the prostate cancer antigen polypeptides, and fragments, variants derivatives, and analogs thereof, can be assayed by various methods.

For example, in one embodiment where one is assaying for the ability to bind or compete with full-length polypeptide of the present invention for binding to an antibody to the full length polypeptide antibody, various immunoassays known in the art can be used, including but not limited to, competitive and non-competitive assay systems using techniques such as radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, in situ immunoassays (using colloidal gold, enzyme or radioisotope labels, for example), western blots, precipitation reactions, agglutination assays (e.g., gel agglutination assays, hemagglutination assays), complement fixation assays, immunofluorescence assays, protein A assays, and immunoelectrophoresis assays, etc. In one embodiment, antibody binding is detected by detecting a label on the primary antibody. In another embodiment, the primary antibody is detected by detecting binding of a secondary antibody or reagent to the primary antibody. In a further embodiment, the secondary antibody is labeled. Many means are known in the art for detecting binding in an immunoassay and are within the scope of the present invention.

In another embodiment, where a ligand is identified, or the ability of a polypeptide fragment, variant or derivative of the invention to multimerize is being evaluated, binding can be assayed, e.g., by means well-known in the art, such as, for example, reducing and non-reducing gel chromatography, protein affinity chromatography, and affinity blotting. See generally, Phizicky, E., et al., Microbiol. Rev. 59:94-123 (1995). In another embodiment, physiological correlates polypeptide of the present invention binding to its substrates (signal transduction) can be assayed.

In addition, assays described herein (see Examples) and otherwise known in the art may routinely be applied to measure the ability of polypeptides of the present invention and fragments, variants derivatives and analogs thereof to elicit polypeptide related biological activity (either in vitro or in vivo). Other methods will be known to the skilled artisan and are within the scope of the invention.

### **Prostate and Prostate Cancer Associated Polynucleotides and Polypeptides of the Invention**

It has been discovered herein that the polynucleotides described in Table 1 are expressed at significantly enhanced levels in human prostate and/or prostate cancer tissues. Accordingly, such polynucleotides, polypeptides encoded by such polynucleotides, and antibodies specific for such polypeptides find use in the prediction, diagnosis, prevention and treatment of prostate related disorders, including prostate cancer as more fully described below.

Table 1 summarizes some of the polynucleotides encompassed by the invention (including contig sequences (SEQ ID NO:X) and the related cDNA clones) and further summarizes certain characteristics of these prostate and/or prostate cancer associated polynucleotides and the polypeptides encoded thereby.

Table 1

Seq ID No.	Sequence/ Contig ID	Gene Name	Overlap	HGS Nucleotide Start End	% Identity	% Similarity	Clone ID
1	574130	(AJ2223500) nidogen-2 [Homo sapiens] Length = 1375	gnl PID c1237850	3 716	87	87	11013C56
2	637706			3 1025			11JAA154
3	638162			109 696			11NTMW23
4	684310			10 300			11FXJA96
5	731016	protease [Human endogenous retrovirus K] >sp P87892 P87892 PROTEASE (FRAGMENT). Length = 334	gnl PID e290663	2 370	66	83	11PLBP54
6	827771			188 322			11PFCR50
7	828193	MAGE-3b [Homo sapiens] >gi 533523 MAGE-6 antigen [Homo sapiens] >gnl PID d1007417. MAGE-6 protein [Homo sapiens]	gi 499122	237 716	97	97	11MMBI07
8	828194			243 401			11PKAA18
9	828199			2 463			11PJCU04
10	828221	put. LAR preprotein (AA - 16 to 1881) [Homo sapiens] >pir S03841 TDHULK leukocyte antigen-related protein precursor - human Length = 1897	gi 34267	1 1326	100	100	11WHQP39
11	828235			3 248			11WBBB77
12	828236	Gu protein [Homo sapiens] >pir PC6010 PC6010 RNA helicase Gu - human (fragment) >sp Q13436 Q13436 NUCLEOLAR RNA HELICASE GU (FRAGMENT). Length = 801	gi 230564	1 1425	84	84	11WBDP29
13	828237			3 779			11WIIPW78

14	828239	(AC002451) pyruvate dehydrogenase kinase isoform 4 [Homo sapiens] >gi 1399197 pyruvate dehydrogenase kinase isoform 4 [Homo sapiens]	gi 2337883	2	433	87	87	HWACS81
15	828242	(AF044321) cytochrome c oxidase assembly protein COX11 [Homo sapiens] >gi 170264 (AF044321) cytochrome c oxidase assembly protein COX11 [Homo sapiens]	gi 170264	3	731	100	100	HWBAS37
16	828247	(AF109906) NG22 [Mus musculus] Length = 707	gi 3986770	3	554	39	61	HWBBX45
17	828248	M1 subunit of ribonucleotide reductase [Homo sapiens] >gi 36153 large subunit ribonucleotide reductase [Homo sapiens] >pir S16680 S16680 ribonucleoside-diphosphate reductase (EC 1.17.4.1) chain M1 - human Length = 792	gi 36065	254	625	82	82	HWBAJ23
18	828250	put. ribosomal protein L3 (AA 1 - 348) [Homo sapiens] >pir A27294 R5HUL3 ribosomal protein L3 precursor, mitochondrial - human Length = 348	gi 34754	58 393	408 1193	94	94	HWBBN56 HUSGZ25
20	828267	(AF047020) alpha-methylacyl-CoA racemase [Homo sapiens] >sp O43673 O43673 ALPHA-METHYLACYL-COA RACEMASE (EC 5.1.99.4). Length = 380	gi 2896148	3	497	79	89	HUSIK57
21	828269			214	492			HUSBF75
22	828272			89	607			HUSYB27
23	828273			300	539			HULCJ25
24	828290	Ki antigen [Mus musculus] >gnl P1D d1029778 (AB007139) PA28 gamma subunit [Mus musculus] >sp O35563 O35563 K1 ANTIGEN. Length = 254	gnl P1D d1022900	648	914	99	99	HUSGH59
25	828326			2	970			HTXJJ72

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26	828397	smooth muscle myosin light chain kinase, smMLCK [C-terminal] [sheep, myometrial tissue, day 127 of gestation, Peptide Partial, 438 aa] [Ovis aries] Length = 438	bbs 17534	1	942		HL.YCG48
27	828405			37	579	100	HL.DBK03
28	828461	fra-1 gene product (AA 1-271) [Homo sapiens] >pir S15750 S15750 transforming protein (fra-1) - human >sp P15407 FRA1_HUMAN FOS- RELATED ANTIGEN 1. Length = 271	gij 31463	1	873	71	HSKE192
29	828482	Gephyrin [Rattus norvegicus] >pir JH0681 JH0681 gephyrin - rat >sp Q03555 GEPH_RAT GEPHYRIN (PUTATIVE GLYCINE RECEPTOR-TUBULIN LINKER PROTEIN). Length = 736	gij 56312	2	940	98	HSIGF72
30	828488	BS4 peptide [Mus musculus] >sp P54729 BS4_MOUSE BS4 PROTEIN. Length = 677	gij 863014	64	189		HSDJR78
31	828491			386	586		HSDFC18
32	828492			51	212		HSDDGQ64
33	828494			428	733		HSDIC05
34	828496			3	1097	93	HSBAY13
35	828498	14.5 kDa translational inhibitor protein, p14.5 [Homo sapiens] Length = 137	gnl PID e1240168	63	500	100	HSDXA60
36	828504	CCAAT-box-binding factor [Homo sapiens] >pir A36368 A36368 transcription factor CBF, CCAAT-binding - human	gij 179969	173	412		HSAAQ28
37	828507			286	462		HSBCA90
38	828512			3	611	82	HSAAV04
39	828516	histone H2A [Homo sapiens] >gij 2062704 histone 2A-like protein [Homo sapiens] >gij 208554 histone 2A-like protein [Homo sapiens]	gnl PID e268230	36	458	100	HSBAL82

40	828519	DEAD box-like RNA helicase [Arabidopsis thaliana] >sp O23251 O23251 DEAD BOX-LIKE RNA HELICASE (FRAGMENT). Length = 450	gnl PID e1316345	142	474	38	58	IIRGIB034
41	828521			31	531			IIRGDE67
42	828522	Unknown	gi 632974	361	684	99	99	HROBP89
43	828525	cytokine receptor [Homo sapiens] >sp Q14213 Q14213 CYTOKINE RECEPTOR PRECURSOR.		14	463			HIRGTJ13
44	828529	ORF_f506 [Escherichia coli] >gi 1789453 (AE000389) aerotaxis sensor receptor, flavoprotein [Escherichia coli]	gi 882594	379	852	100	100	IIROEB35
45	828530			134	253			IIRACZ50
46	828536			84	272			IIPYSC02
47	828537			1	270			HPZAA72
48	828539			130	279			HPWDG48
49	828540			3	278			IIPWCG66
50	828542	(AF093263) homer-2a [Homo sapiens] >sp G3834617 G3834617 HOMER-2A. Length = 343	gi 3834617	366	626	96	97	IIRAAA23
51	828543			3	554			HPWCSI4
52	828544			277	474			IIPWDE02
53	828546			1	1302			IIPWBZ53
54	828550			61	147			IIPWBR41



55	828551	prostate-specific membrane antigen [Homo sapiens] >pir A5688 A5688  prostate-specific membrane antigen - human	gi 190664	61	585				HPWCG88
56	828553			2	655	95			HPWCG57
57	828557	NF-IL6-beta protein [Homo sapiens] >pir A40225 A40225 transcription activator NF-IL6 beta - human Length = 269	gi 189176	3	359	100			HPTVR29
58	828560	T-cell receptor (V-J-C) precursor [Homo sapiens] >pir A26659 A26659 T-cell receptor gamma-1 chain C region - human {SUB 138-310} >gi 339080 T cell receptor gamma chain [Homo sapiens] {SUB 139-310} >gi 339089 T-cell receptor gamma-chain constant region [Homo sapiens] zinc finger protein [Homo sapiens] >pir S4707 S47071 finger protein 11ZF3, Krueppel-related - human (fragment)	gi 339400	381	683	100			HPWAY42
59	828561		gi 498725	1	204	96			HPWBS62
60	828565			3	962				HPWAZI6
61	828566			1214	1423				HPW-AJ41
62	828567			204	440				HPRTTP24
63	828568	thyroid receptor interactor [Homo sapiens] Length = 286	gi 703112	2	475	97	100		HPRSB55
64	828569	envelope protein [Woodchuck hepatitis B virus] >pir A03708 SAVLC2 large surface antigen - woodchuck hepatitis virus (clone 2) Length = 431	gi 336133	204	395	38	47		HPWBR81
65	828570			380	580				HPRTT40
66	828571	DY3.6 [Caenorhabditis elegans] >sp O45323 O45323 DY3.6 PROTEIN. Length = 379	gnl PID c1345081	2	670	27	61		HPRTTP80
67	828574	rTSbeta [Homo sapiens] >sp Q15407 Q15407 RTSBETA. Length = 416	gnl PID c189422	3	458	89	89		HPRTS71
68	828575			3	209				HPRTT65

69	828577	phospholipase A2 [unidentified] >gi 190887	gi 833246	135	395	89	HPRTQ68
70	828578	synovial phospholipase A-2 [Homo sapiens] >gi 190889 synovial phospholipase A-2 (EC 3.1.1.4) [Homo sapiens] >pir A32862 PSHUYF phospholipase A2 (EC 3.1.1.4) precursor, synovial fluid - human >sp P14555 PA2M_HUMAN		136	627	89	HPRTL59
71	828580			2	340		HPRCS86
72	828581			103	339		HPRSB02
73	828583			258	419		HPRTL26
74	828585	HOXB13 [Homo sapiens] Length = 284 (AF043431) retinoblastoma-interacting protein [Homo sapiens] >sp O75371 O75371	gi 1764090	1	285	100	HPRCN60
75	828587	RETINOBLASTOMA-INTERACTING PROTEIN. Length = 897	gi 3452281	139	534	100	HPRCF61
76	828590	breakpoint cluster region protein [Homo sapiens] >sp Q12844 Q12844 BREAKPOINT CLUSTER REGION PROTEIN (FRAGMENT). Length = 889	gi 487346	120	248	98	HPRCE51
77	828592			48	611	98	HPRCF63
78	828593	XP-G factor [Homo sapiens] >pir S35993 S35993 DNA repair protein XPGC - human >sp G303059 G303059 XPGC=DNA REPAIR PROTEIN RAD2 HOMOLOG. (SUB 1166- 1186) Length = 118	gi 298111	1	1272	87	HPRTJ39
79	828594	homeobox protein [Homo sapiens] >pir S19010 S19010 homeotic protein PBX3a - human >sp P40426 PBX3_HUMAN PRE-B- CELL LEUKEMIA TRANSCRIPTION FACTOR-3 (HOMEBOX PROTEIN PBX3).	gi 35315	84	353	93	HPRCM59
80	828596			1	213	93	HPRCH15

Length = 434

81	828597	(AL031532) yeast gtr2 homolog, novel small GTPase subfamily protein [Schizosaccharomyces pombe] >sp O74544 O74544 YEAST GTR2 HOMOLOG, NOVEL SMALL GTPASE SUBFAMILY PROTEIN. Length = 31	gn PI D e 1319429	1	903	70	85	IIPR1B367
82	828598			1	108			IIPRAX93
83	828601			2	520			IPRT175
84	828605			383	601			IIPRAY38
85	828608	acid phosphatase [Homo sapiens] Length = 386	gil189619	21	533	95	96	IPRBF14
86	828609	prostate-specific membrane antigen [Homo sapiens] >pir A56881 A56881 prostate-specific membrane antigen - human	gil190664	186	899	100	100	IPRBI58
87	828610	seminal plasma protein precursor [Homo sapiens] >gil14372 beta-microseminoprotein [Homo sapiens] >gil825707 prostatic secretory protein (PSP-94) [Homo sapiens]	gil338415	3	398	100	100	IPRTJ08
88	828617			3	350			IIPRAD26
89	828620	prostatic acid phosphatase [Homo sapiens] >gil189621 acid phosphatase [Homo sapiens] >gil15997 prostatic acid phosphatase [Homo sapiens]	gil189613	3	650	94	94	IPRBF16
90	828621			4	126			IIPRAG37
91	828622			28	156			IIPRAQ51
92	828623			125	313			IIPRAG59
93	828625			87	275			IIPRAT22
94	828632			68	406			IIPQBV63
95	828635			916	1344			IIPMGE79

96	828637	(AC005600) PKDI [Homo sapiens] >sp O75276 O75276 PKDI (FRAGMENT). Length = 1339	gi 3522923	1	366	70	71	HP0A1B53
97	828639			72	158			HPMDB85
98	828645			2	313			HPJCK50
99	828648	(AF059569) actin binding protein MAYVEN [Homo sapiens] >sp G3789797 G3789797 ACTIN BINDING PROTEIN MAYVEN. Length = 593	gi 3789797	210	677	32	48	HPJBV55
100	828649	neuropeptide Y [Homo sapiens] >gi 189282 neuropeptide Y [Homo sapiens] >gi 2992498 (AC004485) neuropeptide Y precursor [Homo sapiens] similar to ATPases associated with various cellular activities (AAA);	gi 189274	121	375	100	100	HPWBU56
101	828651		gi PIDe1351769	41	742	51	69	HPJDA05
102	828652			1	189			HPJCY65
103	828655			60	251			HPJBW32
104	828657	(A1061283) neuronal protein 4.1 [Mus musculus] >sp G3790545 G3790545 NEURONAL PROTEIN 4.1. Length = 879	gi 3790545	38	328	45	67	HPJBD30
105	828660			103	231			HPJCL80
106	828663	calnexin [Homo sapiens] >gi 186523 calnexin [Homo sapiens] >pir A46673 A46673 calnexin precursor - human >sp P27824 CALX_HUMAN CALNEXIN PRECURSOR (MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I ANTIGEN-BINDING PROTEIN P88) (P90) (IP90). Length = 592	gi 306481	41	703	87	87	HPJCT42
107	828666			1	246			HPJBI71
108	828668			61	315			HPJBK31
109	828669			1	225			HPJBU60
110	828670			222	350			HPJCC36

111	828671	(AJ005866) Sqv-7-like protein [Homo sapiens] >sp E1360006 E1360006 SQV-7-LIKE PROTEIN (FRAGMENT). Length = 261	gn IPID e1360006	3	1025	89	90	HPJAD23
112	828672			1	255			HPICD86
113	828675	MCM4 [Homo sapiens] >sp G2754697 G2754697 MCM4 (FRAGMENT). Length = 712	gi 2754697	2	2173	99	99	HPJBZ66
114	828677			113	268			HPICC05
115	828678	SNAP43 [Homo sapiens] >gi 1174203 PSE- binding factor PTF gamma subunit [Homo sapiens] >pir JC6081 JC6081 proximal sequence element-binding transcription factor gamma chain - human >sp Q16533 Q16533 PSE-BINDING FACTOR PTF GAMMA SUBUNIT. Length = 368	gi 623244	2	664	98	98	HPJAA76
116	828679			142	318			HPJAC93
117	828680	DNA primase (subunit p48) [Homo sapiens] >pir S45630 S45630 DNA primase chain p48 - human >sp P49642 PRI1_HUMAN DNA PRIMASE SMALL SUBUNIT (EC 2.7.7.-) (DNA PRIMASE 49 KD SUBUNIT) (P49). >gi 2353692 DNA primase 1 [Homo sapiens] {SUB 97-146} Length = 420	gi 510406	74	652	100	100	HPICG94
118	828681			3	167			HPJAA30
119	828682			3	617			HPIBM51
120	828683			54	329			HPIBR22
121	828686	(AF006010) progesterone induced protein [Homo sapiens] >sp G4101695 G4101695 PROGESTIN INDUCED PROTEIN. Length = 2796	gi 4101695	2	886	95	97	HPIBQ56
122	828687			27	131			HPIBS12

123	828688	CCAAT-box DNA binding protein subunit NF-YB [Homo sapiens] >sp P25208 CBFA_HUMAN CCAAT-BINDING TRANSCRIPTION FACTOR SUBUNIT A (CBF-A) (NF-Y PROTEIN CHAIN B) (NF-YB) (CAAT-BOX DNA BINDING PROTEIN SUBUNIT B).	gi 189199	128	757	100	100	11P JAA20
124	828689	creatine kinase [Homo sapiens] >pir A31431 A30789 creatine kinase (EC 2.7.3.2) precursor, mitochondrial - human >sp P12532 KCRU_HUMAN CREATINE KINASE, UBIQUITOUS MITOCHONDRIAL PRECURSOR (EC 2.7.3.2) (U-MTCK) (MIA-CK) (ACIDIC-TYPE MITOCHONDRIAL CREATINE K	gi 180590	227	1222	84	84	HP ICC13
125	828692	(AJ223301) aralkyl acyl-CoA:amino acid N-acyltransferase [Bos taurus] >gi 2865607 (AF045032) aralkyl acyl-CoA:amino acid N-acyltransferase [Bos taurus] >sp O46686 O46686 ARALKYL ACYL-COA:AMINO ACID N-ACYLTRANSFERASE (EC 2.3.1.13) (GLYCINE N-ACYLTRANSFERAS	gn P D e 248977	278	1000	49	70	HP BO30
126	828693	dj1409.2 (Melanoma-Associated Antigen MAGE LIKE) [Homo sapiens] >sp O76058 O76058 DJ1409.2 (MELANOMA-ASSOCIATED ANTIGEN MAGE LIKE). Length = 606	gn P D e 311294	1	426	45	69	HP BI.27
127	828694			1	333			HP BY69
128	828696			171	347			HP BA33

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129	828697	kynurenine/alpha-aminoadipate aminotransferase [Rattus norvegicus] >sp Q64602 Q64602 KYNURENINE/ALPHA-AMINOADIPATE AMINOTRANSFERASE (EC 2.6.1.7) (KYNURENINE--OXOGLUTARATE AMINOTRANSFERASE) (KYNURENINE AMINOTRANSFERASE). Length = 425	gj 1050752	258	422	61	72	11P1C1B03
130	828699			3	1109			11P1B1.48
131	828702	prostate- specific membrane antigen [Homo sapiens] >pir A56881 A56881 prostate-specific membrane antigen - human >bbs 164191 prostate-specific membrane antigen,	gj 190664	118	744	76	78	11P1AZ02
132	828703			285	689			11P1B396
133	828704	put. DNA topoisomerase I (AA 1-864) [Escherichia coli] >gnl PID d1015527 DNA topoisomerase I (EC 5.99.1.2) (w-protein) (Relaxing enzyme) (Untwisting enzyme) (Swivelase). [Escherichia coli]	gj 415338	2	406	98	98	11P1B130
134	828706	mitotic centromere-associated kinesin [Homo sapiens] >sp Q99661 Q99661 MITOTIC CENTROMERE-ASSOCIATED KINESIN. Length = 725	gj 1695882	559	1788	98	98	11P1B311
135	828708			2	589			11P1AW81
136	828711			1	93			11P1AZ32
137	828712			49	309			11P1AU16
138	828713			142	396			11P1AV37
139	828714			68	1849			11P1AV20
140	828715			174	356			11P1AS34
141	828718	ipa-6d gene product [Bacillus subtilis] >gnl P D e1186348 alternate gene name: ipa-6d; similar to quinone biosynthesis [Bacillus subtilis]	gj 413930	403	1308	35	57	11P1AL41

142	828723	UDP glucuronosyltransferase precursor [Homo sapiens] >pir A48633 A48633 dihydrotestosterone/androstenediol UDP-glucuronosyltransferase isoform 3, udpgth-3 - human	gi 475759	3	206	97	100	IIPIAL34
143	828726	hydrophobic membrane-bound protein [Escherichia coli] >gi 147818 part of a molybdenum periplasmic binding protein dependent transport system [Escherichia coli] >gi 973215 ModB [Escherichia coli] (AF044954) NADH:ubiquinone oxidoreductase PDSW subunit [Homo sapiens] >gi 416509  (AF088991) NADH-ubiquinone oxidoreductase PDSW subunit [Homo sapiens] Length = 172	gi 504499	1	255	98	98	IIPIAS69
144	828728	MAK11 protein [Saccharomyces cerevisiae] >gi 486013 ORF YKL021c [Saccharomyces cerevisiae] >pir A29938 A29938 MAK11 protein - yeast [Saccharomyces cerevisiae] >sp P20484 MK11_YEAST MAK11 PROTEIN. Length = 468	gi 416442	1	498	84	86	IIPIAS40
145	828730	rab geranylgeranyl transferase [Homo sapiens] >pir JC5538 JC5538 Rab geranylgeranyl transferase (EC 2.5.1.-) alpha chain - human >sp E1256376 E1256376 RAB GERANYLGERANYL TRANSFERASE. Length = 567	gi 171877	394	1569	34	64	IIPIAF82
146	828732	(AF006265) cancer associated surface antigen [Homo sapiens] >gnl PID d1023440 (AB007619) EBAG9 [Homo sapiens] >sp O00559 O00559 CANCER ASSOCIATED SURFACE ANTIGEN. Length = 213	gnl PID e1256376	155	868	97	97	IIPIAN07
147	828733							
148	828735		gi 2213934	202	438	90	90	IIPIAK81 IIPIAE30



149	828736	glandular kallikrein precursor [Homo sapiens] >pir A29586 A29586 tissue kallikrein (EC 3.4.21.35) hGK-1 precursor - human >sp P20151 KLK2_HUMAN GLANDULAR KALLIKREIN 2 PRECURSOR (EC 3.4.21.35) (TISSUE KALLIKREIN) (PROSTATE) (HGK-1). Length = 261 serine/threonine kinase [Rattus norvegicus] >sp O08678 O08678 SERINE/THREONINE KINASE. Length = 793 androgen regulated homeobox protein [Homo sapiens] >sp Q99801 HK31_HUMAN HOMEBOX PROTEIN NKX-3.1. Length = 234	gi 386842	1	132	HPFEA11	
150	828739			60	347	HPFAA46	
151	828740			2	394	HPAC69	
152	828742			2	475	HPHAB61	
153	828748			3	707	HPFAB20	
154	828749	gn PID e290956	443	826	94	99	HPFAA79
155	828752	gi 1732378	1051	1692	99	99	HPFAA91
156	828753	cytochrome c oxidase subunit Vlc preprotein [Homo sapiens] >gi 3859868 (AF067637) cytochrome c oxidase subunit Vlc [Homo sapiens]	2	187	100	100	HPFEA08
157	828754		423	566		HPFDD83	
158	828757		2	409		HPFDI21	
159	828761		3	113		HPFDE61	
160	828762		3	317		HPFDE33	
161	828764		51	329		HPMSI148	
162	828765		3	80	100	100	HPFDB49
163	828766		90	242		HPFDT61	
164	828767		797	937		HPWDK71	
165	828768		1109	1324		HPFDD04	
166	828770		156	392		HPFDF79	

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167	828771	(AF001629) WASP interactor protein [Homo sapiens] >sp G4100621 G4100621 WASP INTERACTOR PROTEIN (FRAGMENT). Length = 328	gil4100621	1	273	55	61	HPFDJ50
168	828772			200	340			HPFDI28
169	828773			115	348			HPFDE85
170	828775			23	208			HPFCR19
171	828776			3	134			HPFCY40
172	828777			131	919			HPFDM39
173	828778			2	121			HPFCZ89
174	828780			46	420			HPFDA70
175	828781			408	734			HPFCP06
176	828782			61	186			HPFDI40
177	828783	relaxin [Homo sapiens] >gil490063 HI-relaxin [Homo sapiens] >gil412167 relaxin [Homo sapiens] >gil512431 preprorelaxin [Homo sapiens] >gil35933 prepro-relaxin HI [Homo sapiens]	gil490056	68	253	70	70	HPFCH80
178	828784			82	321			HPFCT79
179	828785			32	250			HPFCX77
180	828786			302	532			HPFCT31
181	828788			341	538			HPFCI59
182	828790			195	317			HPFCT53
183	828791			6	140			HPFCI14
184	828792			121	801			HPFCC91
185	828794			1219	1440			HPFCJ56
186	828797			128	259			HPFCC42
187	828798			237	350			HPFCI76
188	828799			113	322			HPFAA95
189	828801			90	239			HPFAG41
190	828802			165	392			HPFCL26

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191	828803	(AB022017) AMP-activated protein kinase alpha-1 [Homo sapiens] >sp D1037533 D1037533 AMP-ACTIVATED PROTEIN KINASE ALPHA-1. >gnl PID e315274 AMP-activated protein kinase alpha-1 [Homo sapiens] (SUB 294-550}	gnl PID d1037533	96	458	83	83	11PFBA83
192	828804			98	286			11PEAC32
193	828805			166	303			11PFCE17
194	828807			1	195			11PFCE96
195	828809			147	236			11PEAC52
196	828810			1	153			11PEBT31
197	828811			283	426			11PFAA06
198	828817			2	160			11PCAC47
199	828818			1	258			11PEAA76
200	828819			345	623			11PEBG44
201	828820			314	502			11PEAB80
202	828821			246	416			11PCAF64
203	828823	spore coat protein SP87 [Dictyostelium discoideum] Length = 677	gij 915203	267	875	44	61	11PEAB79
204	828824			458	643			11PCAC56
205	828825			132	446			11PDY72
206	828826			2	730			11PCAN60
207	828829			499	672			11PCAO54
208	828830	Arnt [Homo sapiens] >pir 59550 59550 Arnt - human >sp P27540 ARNT_HUMAN ARYL HYDROCARBON RECEPTOR NUCLEAR TRANSLOCATOR (ARNT PROTEIN) (DIOXIN RECEPTOR, NUCLEAR TRANSLOCATOR) (HYPOXIA-INDUCIBLE FACTOR 1 BETA) (HIF-1 BETA). Length = 789	gij 179004	1	219	90	92	11PCAA27
209	828833			42	278			11PCAB16
210	828835			61	474			11QIDC43

211	828838	chordin [Xenopus laevis] >pir A55195 A55195 chordin precursor - African clawed frog >sp Q91713 CHRD_XENLA CHORDIN PRECURSOR (ORGANIZER-SPECIFIC SECRETED DORSALIZING FACTOR). Length = 941	gi 603945	2	1468	43	56	IIICAO32
212	828840			536	679			HOVCJ65
213	828845			69	212			HOSDGG69
214	828846			3	1034			HSPBQ12
215	828847			36	395			IIPEAA46
216	828849	(AF041474) BAF53a [Homo sapiens] >sp G4001803 G4001803 BAF53A. Length = 429	gi 4001803	62	1468	100	100	HOVCJ86
217	828850	putative [Homo sapiens] >pir A49364 A49364 59 protein, brain - human (fragment) >sp Q09019 DMR9_HUMAN DMR-N9 PROTEIN (PROTEIN 59) (FRAGMENT). Length = 553	gi 306712	2	283	97	97	HOVCJ33
218	828852			96	437			HOSAZ63
219	828853	(AC004449) R33683_3 [Homo sapiens] >sp O60372 O60372 R33683_3 (FRAGMENT). Length = 103	gi 2979531	1	465	40	62	HOSAV36
220	828857	uridine kinase [Mus musculus] Length = 260	gi 471981	3	1013	74	88	HOQBM19
221	828861	enhancer of filamentation 1 [Homo sapiens] >gi 1490787 Crk-associated substrate related protein Cas-L [Homo sapiens]	gi 1280212	2	991	100	100	HPEAE55
222	828866	>sp Q14511 Q14511 ENHANCER OF FILAMENTATION 1. Length = 834		143	637			HOHBF14
223	828872	pericentriol material 1 [Homo sapiens] >pir A54103 A54103 centrosome autoantigen PCM-1 - human >sp Q15154 Q15154	gi 450277	295	879	93	94	HOHAL47

## PERICENTRIOL MATERIAL 1. Length = 2024

224	828874	histone H1(0) (aa 1-194) [Homo sapiens] >pir A24850 HSHU10 histone H1-0 - human >sp P07305 H10_HUMAN HISTONE H1' (H1.0) (H1(0)). {SUB 2-194} Length = 194	gil32107	3	902	82	82	HOGBL72
225	828875	myosin VI [Homo sapiens] >sp G230498 G230498  MYOSIN VI. Length = 1262	gil2304981	1	450	99	99	HOGCC24
226	828877	75 kDa subunit NADH dehydrogenase precursor [Homo sapiens] >pir S17854 S17854 NADH dehydrogenase (ubiquinone) (EC 1.6.5.3) 75K chain precursor - human	gil38079	24	275	95	97	HOFMJ67
227	828878	S-adenosylmethionine decarboxylase proenzyme (EC 4.1.1.50) old gene name 'AMD' [Homo sapiens] >pir A31786 DCHUDM adenosylmethionine decarboxylase (EC 4.1.1.50) precursor - human	gil178518	282	1325	95	95	HOGL089
228	828879			2	271			HOEJ117
229	828881			139	969			HOCAF39
230	828885	product possesses binding site dependent transcriptional suppressing activity [Homo sapiens] >pir A44351 A44351 transcription repressor E4BP4 - human >sp Q1421 Q1421 E4BP4 GENE. Length = 462	gil30956	173	1639	94	95	HOEC58
231	828886			82	228			HOEG165
232	828887	ZNF127-Xp [Homo sapiens] >sp Q13434 Q13434 ZNF127-XP. Length = 485	gil1304599	2	1327	56	76	HOECN41

233	828889	neurofibromin [Homo sapiens] >sp P21359 NF1_HUMAN NEUROFIBROMIN (NEUROFIBROMATOSIS-RELATED PROTEIN NF-1). >gil736765 neurofibromatosis 1 [Homo sapiens] {SUB 751-1611} >gil189161 neurofibromatosis protein type 1 [Homo sapiens] {SUB 1168-1566}	gil292354	265	690	89	89	110DAQ30
234	828891	FAST kinase [Homo sapiens] >pir I37386 I37386 FAST kinase - human >sp Q14296 Q14296 FAST KINASE. Length = 549	gil1006659	84	1238	100	100	HODDG78
235	828899	MAP KINASE-ACTIVATED PROTEIN KINASE 2 (EC 2.7.1.-) (MAPK-ACTIVATED PROTEIN KINASE 2) (MAPKAP KINASE 2) (MAPKAPK-2). Length = 400 zinc finger protein 7 (ZFP7) [Homo sapiens] >pir A34612 A34612 zinc finger protein ZNF7 - human Length = 686 RNA helicase [Homo sapiens] >pir S71758 S71758 DEAD box protein MrDb, Myc-regulated - human >sp Q92732 Q92732 RNA HELICASE. Length = 610 (AE000180) biotin synthesis, sulfur insertion? [Escherichia coli] >gil490219 BIOB gene product [Escherichia coli] >gnl PID e305036 BIOTIN SYNTHASE [Escherichia coli] >pir JC2517 SYECBB biotin synthetase (EC 2.8.1.-) - Escherichia coli	sp P49137 MKK2_HUMA N	3	344			IINWAA42
236	828907			3	566			HN1SS75
237	828911			1217	1501			HN1MC68
238	828914			586	1176	98	99	HN1RL23
239	828917		gil340446	790	1536	57	70	HN1TCR38
240	828921		gnl PID e254454	123	1253	90	90	HN1TRO07
241	828922			138	1403			HN1TAB76
242	828924		gil1786992	1	78	95	95	HN1HAG14

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&gt;sp|P12996|BIOB\_ECOL

243	828925	casein kinase I-alpha [Homo sapiens] >pir A5701 A5701 casein kinase I-alpha - human Length = 337 (AL021366) cICK0721Q.3 (Kinesin related protein) [Homo sapiens] >sp O60887 O60887 CICK0721Q.3 (KINESIN RELATED PROTEIN). >gn P1D e1332987 (AJ010479) kinesin-like protein [Homo sapiens] {SUB I- 274} Length = 673 apurinic/aprimidinic endonuclease [Homo sapiens] >gi 183780 apurinic/aprimidinic endonuclease [Homo sapiens] >gi 32022 AP endonuclease I [Homo sapiens] >bbs 11437 Ref-I=redox factor [human, Peptide, 318 aa] [Homo sapiens] >pir S23550 S23550 DNA- (apurin	376	426	IINGKM39
244	828926		28	522	INTBH70
245	828928		1	330	HNGNK23
246	828930		412	1467	INFJ194
247	828935	gn P1D e1330109	2	1447	INTRI.26
248	828937		124	1158	INTNM15
249	828940	pir A4631 A4631	1399	1806	IINGG72
250	828942		3	386	INFHK65

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251	828943	rapamycin binding protein [Homo sapiens] >gil182644 FK506-binding protein 25 [Homo sapiens] >pir JQ1522 Q1522 peptidylprolyl isomerase (EC 5.2.1.8) FKBP3 - human >sp Q00688 FKB3_HUMAN RAPAMYCIN-SELECTIVE 25 KD IMMUNOPHILIN (FKBP25) (PEPTIDYL-PROLYL CIS-T hepatitis delta antigen interacting protein A [Homo sapiens] >sp Q15834 Q15834 HEPATITIS DELTA ANTIGEN INTERACTING PROTEIN A. Length = 202	gil182626	3	710	100	100	HMWHS08
252	828946	hepatitis delta antigen interacting protein A [Homo sapiens] >sp Q15834 Q15834 HEPATITIS DELTA ANTIGEN INTERACTING PROTEIN A. Length = 202	gil1488314	118	729	66	66	HMWHE39
253	828947	(AF029071) p52 pro-apoptotic protein [Gallus gallus] Length = 465	gil2599492	199 470	396 1384	74	86	HMWIM20 HMWGG82
255	828958	pterin-4a-carbinolamine dehydratase [Homo sapiens] >gil848987 pterin-4a-carbinolamine dehydratase [Homo sapiens] >gnl PIDe1292435 (AJ005542) dimerization cofactor of HNF1;	gil848985	1 2	306 370	100	100	HMWBS21 HMWED17
256	828965	pterin-4a-carbinolamine dehydratase [Rattus norvegicus] >gnl PIDe1292435 (AJ005542) Ran-BP1(Ran-binding protein 1) [Homo sapiens] Length = 200	gnl PIDe1007847	2	742	91	91	HMWFM25
258	828971	similar to leucyl-tRNA synthetase;	gnl PIDe1344085	574	753	74	88	HMVAJ71
259	828973	acidic 82 kDa protein [Homo sapiens]	gil558458	85	678	88	88	HMUBQ39
260	828980	>pir G01522 G01522 acidic 82 kDa protein - human >sp Q12987 Q12987 ACIDIC 82 KDA PROTEIN. Length = 736		3	524	88	88	HMTEME58



261	828984	high mobility group box [Homo sapiens] >pir A41976 A41976 structure-specific recognition protein, SSRP1 - human Length = 709	gi 184242	322	2388	97	97	IIMUAQ01
262	828985	Similarity to Yeast MSP1 protein (TAT-binding homolog 4) (SW:MSP1_YEAST)		734	928			IIMSGI25
263	828988	[Caenorhabditis elegans] >sp P54815 MSP1_CAEEL MSP1 PROTEIN HOMOLOG. Length = 357	gnl PID e 347884	1	1137	79	88	IIMUBL18
264	828993			78	308			IIMTMB67
265	828995			653	1567			IIMSLV02
266	829000			296	478			IIMMBW26
267	829005			1	531			IIMQAI48
268	829009	GTP-binding protein [Homo sapiens] >sp O43824 O43824 GTP-BINDING PROTEIN. Length = 442	gnl PID e 227622	64	927	88	88	IIMQAI69
269	829010	(AF035537) DNA polymerase zeta [Homo sapiens] Length = 3052	gi 2665742	282	1262	93	93	IIMSGI189
270	829012	ribophorin II precursor - human Length = 631	pir B26168 B26168	161	2188	94	95	IIMSJH16
271	829013			1339	1506			IIMIAJ25
272	829019			41	223			IIMIAJ48
273	829020	similar to WD domain, G-beta repeats (2 domains);	gnl PID e 345001	21	800	60	77	IIMEELR71
274	829021			356	640			IIMIAJ26
275	829026	RIZ [Homo sapiens] >sp Q13029 Q13029 ZINC FINGER PROTEIN RIZ. >pir 38902 38902 retinoblastoma-binding protein RIZ - human {SUB 3-1721} Length = 1721	gi 3645905	89	1183	87	87	IIMEELM45

276	829030	chaperonin-like protein [Homo sapiens] >pir S48087 S48087 t-complex-type molecular chaperone CCT6 - human >gil 184462 chaperonin-like protein [Homo sapiens] {SUB 143-531} Length = 531	gil 517065	1	1674	95	95	IIMICQ08
277	829035	(AF082516) I-1 receptor candidate protein [Homo sapiens] >sp G3462807 G3462807 I-1 RECEPTOR CANDIDATE PROTEIN. >gil 3493225 (AF058290) imidazoline receptor antisera-selected protein [Homo sapiens] {SUB 469-1063} Length = 1504	gil 3462807	2	679	98	98	IIMEFK17
278	829041	pyrroline-5-carboxylate reductase [Homo sapiens] >pir A41770 A41770 pyrroline-5- carboxylate reductase (EC 1.5.1.2) - human >sp P32322 PROC_HUMAN PYRROLINE-5- CARBOXYLATE REDUCTASE (EC 1.5.1.2) (P5CR) (P5C REDUCTASE). Length = 319	gil 189498	268	1032	99	100	IIMEIQ04
279	829045			2	1771			IIMEKR35
280	829048			115	1467			IIMEJC44
281	829051			2	256			IIMEBI38
282	829052			795	1154			IIMIBD67
283	829057			116	799			IIMEAF61
284	829058			3	536			IIMEER28
285	829059			310	501			IIMDAQ69
286	829061			3	101			HMCFX82
287	829062	(AF095791) TACC2 protein [Homo sapiens] >sp G377596 G377596 TACC2 PROTEIN (FRAGMENT). Length = 653 kinesin-like DNA binding protein KID - human Length = 665	gil 377596	1417	2622	50	71	IIMCGK90
288	829063		pir S62328 S62328	58	1437	83	84	IIMEFI72
289	829064			2	718			IIMADG63

290	829066	37KD protein, similar to Y122-ECOLI [Escherichia coli] >sp Q47535 Q47535 37KD PROTEIN, SIMILAR TO Y122-ECOLI. Length = 424	gn P D d I013520	600	1427	98	98	IIMAHX38
291	829068	(AF037204) RING zinc finger protein [Homo sapiens] >gi 3387925 (AF070558) RING zinc finger protein RZF [Homo sapiens] >sp O43567 O43567 RING ZINC FINGER PROTEIN. Length = 381	gi 2746333	432	1319	84	84	IIMSII92
292	829069			1	207			ILLYET39
293	829074			1	1269			ILLYDE91
294	829077			181	873			ILLYFD84
295	829078	topoisomerase I [Homo sapiens] >gi 473581 DNA topoisomerase I [Homo sapiens] {SUB 5- 765} >gn P D e 312191 (AL022394) dJ511B24.1 (Topoisomerase I) [Homo sapiens] {SUB 437-765} Length = 765	gi 339804	2	907	69	78	ILLYCP31
296	829079			194	382			ILLYBT93
297	829085	putative ATP/GTP-binding protein [Homo sapiens] >sp Q92989 Q92989 PUTATIVE ATP/GTP-BINDING PROTEIN. Length = 425	gi 1644402	67	783	93	93	IIMCEJ41
298	829093	26S proteasome-associated pad1 homolog [Homo sapiens] >sp O00487 O00487 26S PROTEASOME-ASSOCIATED PAD1 HOMOLOG. Length = 310	gi 1923256	307	1251	100	100	ILLYAN96
299	829099	alpha-L-fucosidase precursor (EC 3.2.1.5) [Homo sapiens] >pir A33427 HWHUFA alpha-L- fucosidase (EC 3.2.1.5) 1 precursor, tissue - human >gn P D e 34843 alpha-L-fucosidase [Homo sapiens] {SUB 357-393} Length = 461	gi 178409	2	850	96	96	ILITDK55
300	829101	protein tyrosine phosphatase [Homo sapiens] Length = 415	gi 804750	3	542	100	100	ILLYAP23

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301	829102	!!!! ALU SUBFAMILY SQ WARNING ENTRY sp P39194 ALU7_HUMAN !!!! Length = 593	3	59	84	94	HLTEO83
302	829103		265	663			HLWAC24
303	829104		316	525			HLWAX30
304	829109		3	155			HLTCF21
305	829111		1	333			HLTGS92
306	829115		2	670			HLTHA72
307	829116		104	265			HLQDA07
308	829119		144	374			HLMCQ37
309	829120		611	910			HLTGP61
310	829121		558	698			HLQCN32
311	829123	aldehyde oxidase [Homo sapiens] >pir A49634 A49634 aldehyde oxidase (EC 1.2.3.1) - human >sp Q06278 ADO_HUMAN ALDEHYDE OXIDASE (EC 1.2.3.1). Length = 1338	7	585	99	99	HLQDA57
312	829126		2	154			HLQCX53
313	829135	beta-D-galactosidase precursor (EC 3.2.1.23) [Homo sapiens] >gil 79423 beta-galactosidase precursor (EC 3.2.1.23) [Homo sapiens] >pir A32688 A32611 beta-galactosidase (EC 3.2.1.23) precursor - human (AJ005458) protein Phosphatase 2C beta [Bos taurus] >sp O62830 O62830 PROTEIN PHOSPHATASE 2C BETA (EC 3.1.3.16). Length = 387	3	2090	98	98	HLQAM57
314	829136		55	1254	95	96	HLTIS28

315	829138	cytochrome b5 [Homo sapiens] >pir A28936 CBHU5 cytochrome b5, microsomal form - human >sp P00167 CYB5_HUMAN CYTOCHROME B5. {SUB 2-134} >gi 181229 cytochrome b5 [Homo sapiens] {SUB 87-134} Length = 134	gi 181227	35	499	89	89	HLH1N31
316	829142	(AF016509) oxidoreductase [Homo sapiens] >sp O14756 O14756 OXIDOREDUCTASE. Length = 317	gi 2338748	2	1135	99	99	HLIB128
317	829148	protein kinase C iota [Homo sapiens] >gi 598225		55	279			HLHDP51
318	829149	protein kinase C iota [Homo sapiens] >pir A49509 A49509 protein kinase C (EC 2.7.1.-) ) iota - human	gi 432274	1	783	99	100	HLICD11
319	829156	ORF YDL063c [Saccharomyces cerevisiae] >pir S67598 S67598 probable membrane protein YDL063c - yeast (Saccharomyces cerevisiae)	gnl PID e253210	3	347	82	83	HLIICD19
320	829162	(AF019767) zinc finger protein [Homo sapiens] >sp O75312 O75312 ZINC FINGER PROTEIN. Length = 459	gi 3510462	3	890	88	89	HLGIDA89
321	829170	complement factor B [Homo sapiens]		2	160			HLDBY56
322	829177	>gi 2347133 (AF019413) complement factor B [Homo sapiens] >gi 553536 MHC factor B [Homo sapiens] {SUB 339-509} Length = 764	gi 291922	1	600	86	87	HLDBN31
323	829179			518	847			HL2AG36

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324	829184	CDC2 polypeptide (CDC2) (AA 1-297) [Homo sapiens] >gi 29841  CDC2 protein (AA 1-297) [Homo sapiens] >pir A29539 A29539 protein kinase (EC 2.7.1.37) cdc2 - human >sp P06493 CC2_HUMAN CELL DIVISION CONTROL PROTEIN 2 HOMOLOG (EC 2.7.1.-) (P34 PROTEIN KINASE)	gi 29839	553	1005	98	98	III.1B1394
325	829185	M-phase phosphoprotein 4 [Homo sapiens] >sp Q99545 Q99545 M-PHASE PHOSPHOPROTEIN 4 (FRAGMENT). Length = 611	gn P D e248491	77	295			III.2A1106
326	829188			282	1238	92	92	III.AA163
327	829190	(AF038869) eukaryotic initiation factor 4E-binding protein 3 [Homo sapiens] >sp O60516 O60516 EUKARYOTIC INITIATION FACTOR 4E-BINDING PROTEIN 3. Length = 100	gi 3169393	3	359	87	87	III.2AG38
328	829193	protein kinase [Homo sapiens] >pir S34130 S34130 serine/threonine-specific protein kinase PLK (EC 2.7.1.-) - human >sp P53350 PLK1_HUMAN SERINE/THREONINE-PROTEIN KINASE PLK (EC 2.7.1.-) (PLK-1) (SERINE- THREONINE PROTEIN KINASE 13) (STPK13). Length = 603	gi 312998	2	988	94	94	III.4A138
329	829196	TAK1 binding protein [Homo sapiens] >sp Q15750 Q15750 TAK1 BINDING PROTEIN. Length = 504	gi 1401126	1	432			III.1AR10
330	829197	(AF060502) peroxisome assembly protein PEX10 [Homo sapiens] >sp O60683 PEXA_HUMAN PEROXISOME ASSEMBLY PROTEIN PEX10 (PEROXIN-10). Length = 326	gi 3170653	1	252	75	76	III.1BM07
331	829202			97	465	92	94	III.1AY04

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332	829203	cyclin G2 [Homo sapiens] >gi 1236915 cyclin G2	1	258	HL1AL88
333	829209	[Homo sapiens] >sp Q16589 Q16589 CYCLIN G2. Length = 344	127	342	HL2AF80
334	829210		148	315	HL1AG80
335	829214		2	484	HKMSB51
336	829215		29	175	HL1AG81
337	829219		24	290	HL1AG22
338	829220		68	664	HKMMC06
339	829222	(AF016371) U-snrnp-associated cyclophilin [Homo sapiens] >gi 3647230 (AF036331) cyclophilin [Homo sapiens] >sp O43447 O43447 U-SNRNP-ASSOCIATED CYCLOPHILIN (EC 5.2.1.8). Length = 177	1	549	HKGBU67
340	829223		2	187	HL1AC64
341	829225	probable transposase - human transposable element MER37 >pir S72486 S72486 putative transposase - human transposon MER37 (fragment) {SUB 177-349} Length = 454	1607	1720	HNHBF88
342	829226	pre-B cell enhancing factor [Homo sapiens] >pir A55927 A55927 pre-B cell enhancing factor - human >sp P43490 PBEF_HUMAN PRE-B CELL ENHANCING FACTOR PRECURSOR. Length = 491	186	1730	HKMMZ30
343	829227		285	548	HKIYE27
344	829231		42	92	HKMMF67
345	829232	cyclin A [Homo sapiens] >gi 510604 cyclin A [Homo sapiens] >pir S08277 S08277 cyclin A - human >sp P20248 CG2A_HUMAN G2/MITOTIC-SPECIFIC CYCLIN A. Length = 432	2	1546	HKIGDC59
346	829233		123	446	HKGBH49

347	829239	palmitoyl-protein thioesterase [Homo sapiens]	gij1160967	141	782	IKFBA66
348	829240	>gij1314355 palmitoyl protein thioesterase		144	347	IKGAB62
349	829242	[Homo sapiens] >gij2465725 (AF022211)		2	955	IKHAK14
		palmitoyl-protein thioesterase [Homo sapiens]				
		>sp P50897 PPT_HUMAN PALMITOYL-				
		PROTEIN THIOESTERASE PRECURSOR (EC				
		3.1.2.22)(PALMI				
350	829246	(AF094583) putative HIV-1 infection related	gij3885931	68	424	IKAFK34
351	829250	protein [Homo sapiens] >sp G388593 G3885931		169	309	IKAJW63
352	829253	PUTATIVE HIV-1 INFECTION RELATED		158	982	IKAHIA61
353	829256	PROTEIN (FRAGMENT). Length = 129		1043	1831	IKAFIL67
354	829263	histone H4 [Tigriopus californicus] >gij297562	gij10616	2	361	HKADJ19
		histone H4 [Chironomus thummi] >gij7084				
		histone H4 gene product [Chironomus thummi]				
		>gij7440 histone H4 [Drosophila hydei]				
		>gn PIDe242831 histone H4 [Drosophila hydei]				
		>gn PIDe242923 histone H4 [Drosophila				
		similar to S. cerevisiae longevity-assurance				
		protein 1 (SP:P38703) [Caenorhabditis elegans]				
355	829266	>sp Q17870 Q17870 SIMILAR TO S.	gij1123105	115	636	IKADL80
		CEREVISIAE LONGEVITY-ASSURANCE				
		PROTEIN 1. Length = 362				



356	829271	cAMP response element regulatory protein [Homo sapiens] >gnl PID d1014939 TAXREB67 protein [Homo sapiens] >pir A45377 A45377 transcription factor CREB-2 - human >sp P18848 ATF4_HUMAN CYCLIC-AMP- DEPENDENT TRANSCRIPTION FACTOR ATF-4 (DNA-BINDING PROTEIN TAX unknown [Homo sapiens] >pir I38891 I38891 hypothetical protein - human (fragment) >sp Q13021 BENE_HUMAN BENE PROTEIN (FRAGMENT). Length = 148 (AB006202) cytochrome b small subunit of complex II [Homo sapiens] >sp O14521 DHSD_HUMAN SUCCINATE DEHYDROGENASE [UBIQUINONE] CYTOCHROME B SMALL SUBUNIT PRECURSOR (CYBS) (SUCCINATE- UBIQUINONE REDUCTASE MEMBRANE ANCHOR SUBUNIT). Length = 159 Similar to D.melanogaster cadherin-related tumor suppressor [Homo sapiens] >sp Q92566 Q92566 MYELOBLAST KIAA0279 (FRAGMENT). Length = 2408 (AC005620) R33590_2, partial CDS [Homo sapiens] >sp O75291 O75291 R33590_2, PARTIAL CDS (FRAGMENT). Length = 121	gij I81041	261	1118	86	86	HLIAG18
357	829273		gij I000712	1	507	94	94	HKAEP12
358	829274		gnl PID d1022913	55	546	76	76	IIKAP138
359	829276		gnl PID d1014097	272	2422	90	90	IIKAC1358
360	829279		gij J548790	163	597	95	95	IIKAA581
361	829280			172	375			IIKSB47
362	829283			235	414			IIJAAF37
363	829284			2	322			IIJMB19
364	829285			706	912			IIKADQ69
365	829287			134	358			IIJAB29
366	829295			81	212			IIJACK32

367	829296	mitotic kinase-like protein-1 [Homo sapiens] >pir S28262 S28262 kinesin-related protein MKLP-1 - human >sp Q02241 MKLP_HUMAN MITOTIC KINESIN-LIKE PROTEIN-1. Length = 960	gi 34672	352	666	IIISAN67
368	829297			1	225	IIJPBA19
369	829298	O-6-methylguanine-DNA methyltransferase [Homo sapiens] >gi 307199 6-O-methylguanine- DNA methyltransferase (EC 2.1.1.63) [Homo sapiens] >gi 34559 O-6-methylguanine-DNA methyltransferase [Homo sapiens] >pir A34889 XUHUMC methylated-DNA-- protein-cysteine S-m	gi 187579	2	694	IIISAV27
370	829302	putative [Homo sapiens] >pir B41648 B41648 protein-tyrosine-phosphatase (EC 3.1.3.48) cdc25B - human >sp P30305 MPI2_HUMAN M- PHASE INDUCER PHOSPHATASE 2 (EC 3.1.3.48). >gi 2739200 (AF036233) cdc25B phosphatase [Homo sapiens] {SUB 56-338} Length = 566	gi 180173	600	929	IIIBEI72
371	829304			300	716	IIKAAAL43
372	829320			161	853	IIIBC185
373	829322	capping protein alpha subunit isoform 1 [Homo sapiens] >pir G02639 G02639 capping protein alpha subunit isoform 1 - human >sp P52907 CAZI_HUMAN F-ACTIN CAPING PROTEIN ALPHA-1 SUBUNIT (CAPZ). Length = 286	gi 1336099	3	938	IIJBCY27
374	829355			3	782	IIIEAA46

375	829364	initiation factor 2 alpha [Bos taurus] >gil204002 translational initiation factor eIF-2, alpha subunit [Rattus norvegicus] >pir A26711 A26711 translation initiation factor eIF-2 alpha chain - rat >pir S18461 S18461 translation initiation factor eIF-2 alph	gil325	70	651	88	88	IIKAEV74
376	829919	weak similarity to procollagen alpha chain I(V)		272	448			HAIACU5
377	829941	chain [Caenorhabditis elegans] >sp Q20220 Q20220 SIMILARITY TO PROCOLLAGEN ALPHA CHAIN I(V) CHAIN. Length = 697	gil1065515	215	796	50	74	HAIBC14
378	829945	(AF033188) WSB-2 [Mus musculus]		43	222			IIAGHIF36
379	829946	>sp O54929 O54929 WSB-2. Length = 404		2	319			IIAHCZ18
380	829947		gil2766493	1	1206	95	98	IIAICN24
381	829952	HIV-EP2/Schnurri-2 [Homo sapiens] >gil187405		478	741			IIAICL28
382	829954	MHC binding protein-2 [Homo sapiens] {SUB 1184-1323} Length = 1833 zinc finger protein [Homo sapiens] >sp Q92951 Q92951 ZINC FINGER PROTEIN. Length = 273	gil182120	2	853	80	82	HAGDR03
383	829955		gil1575615	52	885	99	100	HAGEX65
384	829957	ribosomal protein L22 [Rattus norvegicus]		1	744			IIAGEP17
385	829958	>pir S52084 S52084 ribosomal protein L22 - rat Length = 128	gil710295	2	418	62	74	IIAECI75

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Accession	Gene	Protein	Length	Score	E-value	Ident	Query
829960	sorbitol dehydrogenase [Homo sapiens] >gi 1755138 sorbitol dehydrogenase [Homo sapiens] >pir A54674 A54674 L-iditol 2-dehydrogenase (EC 1.1.1.14) - human >sp G1755138 G1755138 SORBITOL DEHYDROGENASE. Length = 357 (AF106835) putative DnaJ [Methylovorus sp. strain SS1] >sp G4008081 G4008081 PUTATIVE DnaJ. Length = 371	gi 520450	2	1069	97	1069	HAIBJ62
829966	histone H1 [Homo sapiens] >pir S26364 HSHU11 histone H1-1 - human >sp P16403 H1D_HUMAN HISTONE H1D (H1.2). {SUB 2-213} Length = 213	gi 31968	213	542	81	542	HAADD138
829970	transcription factor ATF-3 - human (fragment) Length = 222	pir C34223 C34223	3	878	72	878	HADBI65
829981	nuclear RNA helicase [Homo sapiens] >sp O00148 O00148 NUCLEAR RNA HELICASE. Length = 427	gi 1905998	26	721	88	721	HACBI001
829986	smooth muscle myosin heavy chain isoform SM1 [human, umbilical cord, fetal aorta, Peptide Partial, 330 aa] [Homo sapiens] >pir I65768 I65768 smooth muscle myosin heavy chain isoform SM1 - human (fragment) >sp Q16086 Q16086 SMOOTH MUSCLE MYOSIN HEAVY CHAIN	bbs 140615	21	209	100	209	HACBQ88
829988			325	849		849	HAACA104
829990			266	454		454	HADFJ12

395	829991	NGF1-B/nur77 beta-type transcription factor homolog=TINUR [human, T lymphoid cell line, PEER, Peptide, 535 aa] [Homo sapiens] >sp Q1631 Q1631 TINUR=NGF1-B/NUR77 BETA-TYPE TRANSCRIPTION FACTOR HOMOLOG. Length = 535	bbs 164521	2	286	98	98	HACBV53
396	829992	Nut56-like protein [Homo sapiens]		289	540			I1ACBX74
397	829993	>sp Q92685 NT56_HUMAN NOT56-LIKE PROTEIN. Length = 438 (AL033385) dna-directed rna polymerase iii subunit [Schizosaccharomyces pombe]	gnl PID e276888	3	440	77	77	I16EDW38
398	829998		gnl PID e1339667	270	830	43	65	I16EDK29
399	829999	NNP-1 [Homo sapiens]		14	142			I16BSE17
400	830000	>sp P56182 NNP1_HUMAN NNP-1 PROTEIN (D21S2056E). Length = 461 homologous to rat HREV107 (ACC.NO. X76453) [Homo sapiens] Length = 162 alpha 1(XVIII) collagen [Mus musculus] >sp Q61437 Q61437 PROCOLLAGEN, TYPE XVIII, ALPHA 1 (ALPHA 1 COLLAGEN) (XVIII) (FRAGMENT). Length = 1288	gil2258274	545	856	77	77	I16EEQ39
401	830001		gil1054752	397	903	88	88	I12MBY64
402	830005		gil511298	3	347	37	42	I16LEEX10
403	830009	TFIIIE-beta [Homo sapiens] >bbs 67862 general transcription factor IIE 34 kda subunit, TFIIIE 34 kda subunit [human, Peptide, 291 aa] [Homo sapiens] >pir S29292 S29292 transcription factor TFIIIE-beta - human Length = 291	gil37070	3	1028	93	93	I12LAD85

404	830010	(AF062346) zinc finger protein 216 splice variant 1 [Homo sapiens] >gi 3643811 (AF062347) zinc finger protein 216 splice variant 2 [Homo sapiens] >gi 3668066 (AF062072) zinc finger protein 216 [Homo sapiens] >sp O76080 O76080 ZINC FINGER PROTEIN 216. >bbs	gi 3643809	1	930	100	100	I12MIBU62
405	830127	thymopoietin alpha [Homo sapiens] >pir A5574 A5574  thymopoietin alpha precursor - human Length = 694	gi 508725	469	1074	77	78	I12MIB125
406	830128	subunit of coatomer complex [Homo sapiens] >sp P35606 COPP_HUMAN COATOMER BETA' SUBUNIT (BETA'-COAT PROTEIN) (BETA'-COP) (P102). {SUB 2-906} Length = 906	gi 298097	102	770	100	100	I12CB1125
407	830129			3	2234	100	100	I12CBU57
408	830137	aldehyde dehydrogenase [Homo sapiens] >sp P30837 DHAS_HUMAN ALDEHYDE DEHYDROGENASE, MITOCHONDRIAL X PRECURSOR (EC 1.2.1.3) (CLASS 2). Length = 517	gi 1263008	2	943	95	95	I12CBX43
409	830140	retroviral proteinase-like protein - human (fragment) Length = 165	pir JE0065 JE0065	347	784	100	100	I12CBG30
410	830157	(AF043735) 14-3-3 epsilon [Bos taurus] >gi 984319 epsilon 14-3-3 protein [Homo sapiens] >gnl PID d1033501 (AB017103) 14-3-3 epsilon [Homo sapiens] >gi 902787 14-3-3 protein epsilon isoform [Homo sapiens] >gi 1184725 14-3-3 protein epsilon isoform [Homo sa	gi 3676399	2	889	99	99	I12CBB64

411	830195	90kDa heat shock protein [Homo sapiens] >pir A29461 HHHU84 heat shock protein 90-beta -human >sp P08238 HS9B_HUMAN HEAT SHOCK PROTEIN HSP 90-BETA (HSP 84) (HSP 90). {SUB 2-724} Length = 724	gj 306891	80	631	93	94	HWACG91
412	830196	90kDa heat shock protein [Homo sapiens] >pir A29461 HHHU84 heat shock protein 90-beta -human >sp P08238 HS9B_HUMAN HEAT SHOCK PROTEIN HSP 90-BETA (HSP 84) (HSP 90). {SUB 2-724} Length = 724	gj 306891	19	1263	100	100	112CAC90
413	830409	initiation factor eIF3 p40 subunit [Homo sapiens] >sp O15372 O15372 EIF3-p40. Length = 352	gj 2351380	325	1092	91	91	111.DCQ28
414	830417	core protein II precursor [Homo sapiens] >pir A32629 A32629 ubiquinol--cytochrome-c reductase (EC 1.10.2.2) core protein II - human Length = 453	gj 180928	115	744	81	82	11MCBI54
415	830531	5' half of the product is homologues to Bacillus subtilis SAICAR synthetase, 3' half corresponds to the catalytic subunit of AIR carboxylase [Homo sapiens] >pir S14147 S14147 multifunctional purine biosynthesis protein - human Length = 425	gj 28384	112	1059	100	100	11MCGQ67
416	830677	pinin [Canis familiaris] >sp P79149 P79149 PININ. Length = 773	gj 1684845	8	1111	88	88	11L.WBS80
417	831355	GTP-binding protein - mouse Length = 198	pir S39543 S39543	128	730	99	100	11K.MAB33
418	831420	(AB016869) p70 ribosomal S6 kinase beta [Homo sapiens] >sp D1035383 D1035383 P70 RIBOSOMAL S6 KINASE BETA. Length = 495	gnl P D D1035383	1	672	91	92	11WBAS06

419	831702	Gem [Homo sapiens] >pir A54575 A54575 35K- GTP-binding protein Gem - human >sp P55040 GEM_HUMAN GTP-BINDING PROTEIN GEM (GTP-BINDING MITOGEN- INDUCED T-CELL PROTEIN) (RAS-LIKE PROTEIN KIR). Length = 296	gil544493	100	1107	93	93	H2LAD84
420	831717	ets2 protein [Homo sapiens] >gil2736087 (AF017257) erythroblastosis virus oncogene homolog 2 protein [Homo sapiens] >pir B32066 TVHUE2 transcription factor ets-2 - human >sp P15036 ETS2_HUMAN C-ETS-2 PROTEIN. >gil182271 ets protein [Homo sapiens] {SUB 324	gil182273	278	1309	90	90	HLLBB45
421	832488	tissue-specific secretory protein [unidentified] >gil32051 HE4 protein [Homo sapiens] >pir S25454 S25454 HE4 protein - human >sp Q14508 EP4_HUMAN MAJOR EPIDIDYMIS-SPECIFIC PROTEIN I:4 PRECURSOR (HE4) (EPIDIDYMAL SECRETORY PROTEIN E4). Length = 125 secretory granule proteoglycan peptide core [Homo sapiens] >gil338062 proteoglycan secretory granule 1 [Homo sapiens] >gil32433 hematopoietic proteoglycan core protein (AA 1- 158) [Homo sapiens] >pir A35183 A28058 secretory granule proteoglycan core prote putative Rab5-interacting protein {clone L1-57} [human, HeLa cells, Peptide Partial, 122 aa] [Homo sapiens]	gil583141	24	434	98	100	HKMLZ60
422	833207	secretory granule proteoglycan peptide core [Homo sapiens] >gil338062 proteoglycan secretory granule 1 [Homo sapiens] >gil32433 hematopoietic proteoglycan core protein (AA 1- 158) [Homo sapiens] >pir A35183 A28058 secretory granule proteoglycan core prote	gil190420	57	542	81	81	IIWAFH33
423	835940	putative Rab5-interacting protein {clone L1-57} [human, HeLa cells, Peptide Partial, 122 aa] [Homo sapiens]	bbs180090	126	464	78	81	HNHFHV44
424	836953	GTP-binding protein [Homo sapiens] >pir G34323 G34323 GTP-binding protein Rab6 - human	gil550072	388	1038	99	99	HMEFS23



425	837105	ribosomal protein L5 [Homo sapiens] >pir S55912 S55912 ribosomal protein L5, cytosolic - human >gil 658578 ribosomal L5 protein [Homo sapiens] {SUB 153-297} Length = 297	gil 550013	860	1168	IILIAS90
426	837300			276	494	HODHI94
427	837373			1	714	HIASC92
428	837687	protein trafficking protein [Homo sapiens] >gnl PID e239969 transmembrane protein [Homo sapiens] >gnl PID e1309760 (AJ004913) integral membrane protein, Tmp21-I (p23) [Homo sapiens] >pir G01159 G01159 protein trafficking protein tmp21-I - human >sp E13097	gil 407826	435	953	HSLBF05
429	837991	procollagen C-proteinase [Homo sapiens] >sp Q13292 Q13292 PROCOLLAGEN C- PROTEINASE. Length = 986	gil 245357	1	294	HPICY94
430	838442	cyclin C [Homo sapiens] >pir A40268 A40268 cyclin C - human >sp P24863 CG1C_HUMAN G1/S-SPECIFIC CYCLIN C. Length = 303 (AF016369) U4/U6 small nuclear ribonucleoprotein hPrp4 [Homo sapiens] >sp O43445 O43445 U4/U6 SMALL NUCLEAR RIBONUCLEOPROTEIN HPRP4. Length = 522	gil 117984	3	506	HAUBJ52
431	840541			127	549	HWIQA57
432	840543		gil 2708305	40	1020	IHWBEJ29
433	840550	AZ-1 [Mus musculus] >gnl PID d1008454 pre- acrosome localization protein [Mus musculus] >pir S63993 S63993 acrosomal protein AZ1 - mouse >sp Q62036 Q62036 5-AZACYTIDINE INDUCED PROTEIN (PRE-ACROSOME LOCALIZATION PROTEIN). Length = 1060	gnl PID d1019745	1	141	HWBFM54
434	840563			382	723	HADFY02
435	840565			1	300	HHGCW14

436	840569	p I6Rip [Mus musculus] >sp P97434 P97434 PI16RIP. Length = 1024		gij1657837	2	136	2	HPRBG41
437	840570				2	691	90	HOEDH35
438	840571	S-adenosyl homocysteine hydrolase homolog [Homo sapiens] Length = 500			873	1097		HIBCA19
439	840573			gj2852125	3	719	74	HYAAB09
440	840574	KERATIN, TYPE I CYTOSKELETAL I0 (CYTOKERATIN I0) (K10) (CK I0).			2	292		HWLBN43
441	840575	>sp G244509 G244509 KERATIN I0 V2 SUBDOMAIN I42 AMINO ACID VARIANT. {SUB 452-593} Length = 593		sp P13645 KICJ_HUMAN	3	1856	100	HWEAD52
442	840579	(AJ000480) phosphoprotein [Homo sapiens] >sp O15180 O15180 PHOSPHOPROTEIN (FRAGMENT). Length = 224.		gnl PID e329709	50	1549		I1APBL12
443	840580	alpha-adaptin (A) (AA 1-977) [Mus musculus]			343	867		HWLFEE67
444	840581	>pirl A30111 A30111 alpha-adaptin A - mouse			21	191		I1YAAAY95
445	840605	>sp P17426 ADAA_MOUSE ALPHA-ADAPTIN A (CLATHRIN ASSEMBLY PROTEIN COMPLEX 2 ALPHA-A LARGE CHAIN) (I00 KD COATED VESICLE PROTEIN A) (PLASMA MEMBRANE ADAPTOR HA2/AP2 ADAPT		gnl PID e329709	3	170	97	I1WTAI185
446	840607	alpha-adaptin (A) (AA 1-977) [Mus musculus]		gi 49878	3	317	98	I1TYSE72
447	840609	olfactomedin [Rana catesbeiana] >pirl A47442 A47442 olfactomedin precursor - bullfrog >sp Q07081 OLFM_RANCA OLFACOMEDIN PRECURSOR (OLFATORY MUCUS PROTEIN). Length = 464		gi 294502	1	201	46	I1UFBD83

448	840610	plakoglobin [Homo sapiens] >sp Q15151 Q15151 PLAKOGLOBIN. >gnl PID d1010077 plakoglobin [Homo sapiens] {SUB 239-409} Length = 745	gnl PID e214034	1784	2818	94	94	HIBGNU40
449	840611	B-IND1 protein [Mus musculus]		657	848			HUFAT62
450	840612	>sp O09003 O09003 B-IND1 PROTEIN. Length = 189	gnl PID e1192419	130	1242	85	86	HWLFV07
451	840615	casein kinase II alpha subunit [Bos taurus] >gij611 casein kinase alpha subunit [Bos taurus] >gij177994 casein kinase II alpha subunit [Homo sapiens] >gij598147 casein kinase II alpha subunit [Homo sapiens] >pir A30319 A30319 casein kinase II (EC 2.7.1.-)	gij162777	140	1234	94	94	HUKDT16
452	840622	1,4-alpha-glucan branching enzyme [Homo sapiens] >pir A46075 A46075 glycogen branching enzyme - human		135	962			ITXNQ26
453	840623	>sp Q04446 GLGB_HUMAN 1,4-ALPHA- GLUCAN BRANCHING ENZYME (EC 2.4.1.18) (GLYCOGEN BRANCHING ENZYME) (BRANCHER ENZYME). Length = 702	gij184026	3	542	97	98	ITTEK41
454	840624			1065	1550			ITXBO36

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455	840631	(AL033514) predicted using Genefinder; cDNA EST yk465c10.5 comes from this gene [Caenorhabditis elegans] >sp E1358418 E1358418 Y75B8A.16 PROTEIN. Length = 431	gnl PID e1358418	3	1250	53	73	HTTDU70
456	840632	(AC004684) putative ribitol dehydrogenase [Arabidopsis thaliana] >sp O80924 O80924 PUTATIVE RIBOTOL DEHYDROGENASE. Length = 321	gi 3236237	1241	1453			HTTFY74
457	840633			1	612			HTTFA16
458	840634			232	438			HTTFG83
459	840635			35	748			HTXBW79
460	840636			134	382			HTWBE73
461	840637			315	551			HTTEZ16
462	840639			1035	1700			HTTET75
463	840640			2	418	31	50	HTQDA44
464	840650	spermatid perinuclear RNA binding protein [Mus musculus] >pir A57284 A57284 spermatid perinuclear RNA-binding protein Spnr - mouse >sp Q62262 Q62262 SPERMATID PERINUCLEAR RNA-BINDING PROTEIN.	gi 673454	86	940			HTPAG74
465	840652			1	588	89	89	HTTCB17

Length = 648

466	840653	(AF016507) C-terminal binding protein 2 [Homo sapiens] >sp P56545 CTB2_HUMAN C-TERMINAL BINDING PROTEIN 2. Length = 445	3	989		HTTDG56
467	840655		1	2139		HTPCP50
468	840659		511	1518	89	HTSHI54
469	840660	cleavage signal 1 protein [Homo sapiens] >pir JH0629 JH0629 cleavage signal-1 protein - human >sp P28290 CSI_HUMAN CLEAVAGE SIGNAL-1 PROTEIN (CS-1). Length = 249	293	520		HTOJF77
470	840661		3	710		HTLGP71
471	840662		494	1333	90	HTOEY44
472	840663	(AF037448) Gry-rbp [Homo sapiens] >sp O60506 O60506 GRY-RBP. Length = 623	179	466		HTPBY35
473	840670		1132	1647		HTTBJ61
474	840671		210	1001		HTTJM95
475	840672		3	1739	99	HTTHD09
476	840673	complement component C1s [Homo sapiens] >gil 79648 complement subcomponent C1s precursor [Homo sapiens] >gil 763110 complement protein C1s precursor [Homo sapiens] >pir A40496 C1HUS complement subcomponent C1s (EC 3.4.21.42) precursor - human >sp P09871 C1	1	690	98	HTTJAA66
477	840674	glypican [Homo sapiens] >pir A36347 A36347 glypican 1 precursor - human >sp P35052 GLYP_HUMAN GLYPICAN-1	208	525	87	HTLDZ68

PRECURSOR. Length = 558

478	840677		237	1010		HTJNE24
479	840678		3	842		HTGFX11
480	840680	Similarity to H.influenza ribonuclease PH (SW:RNPH_HAEIN);	115	555	48 72	HTLEI30
481	840691	polynucleotide adenylyltransferase [Bos taurus] >sp P25500 PAP_BOVIN POLY(A) POLYMERASE (EC 2.7.7.19) (PAP) (POL.YNUCLEOTIDE ADENYLYLTRANSFERASE). (SUB 2-739) Length = 739	1	900	68 70	ITEKG75
482	840700		54	998		ITELT78
483	840701		879	1370		HDQDW52
484	840702		713	955		ITEJY89
485	840705		106	621		ITELU22
486	840715	stanniocalcin [Homo sapiens] >gi 199620 stanniocalcin precursor [Homo sapiens]. >sp P52823 CSTP_HUMAN STANNIOCALCIN PRECURSOR.	1	828	99 99	HSYBK03
487	840717		561	1058		HSSNA42
488	840718	(AC005154) similar to protein U28928 (PID:g861306) [Homo sapiens] >sp O75223 O75223 WUGSC:II_DJ0777023.1 PROTEIN. Length = 188	227	562	98 98	HSSMV32
489	840719	metallothionein I-F [Homo sapiens] >gi 386866 human metallothionein-I-F [Homo sapiens] >pir B22634 SMHUIF metallothionein I-F - human >sp P04733 MT1F_HUMAN	3	284		HSSNB31
490	840724		226	510	100 100	HSVBQ73

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## METALLOTHIONEIN-IF (MT-IF). Length = 61

491	840725	Unknown	1259	1501	HSRDA46
492	840727		4	606	HSXCO55
493	840731	apg-2 [Mus musculus] >sp Q61316 HS74_MOUSE HEAT SHOCK 70-RELATED PROTEIN APG-2. Length = 841	22	471	75 HSSAO67
494	840733		3	437	HSSG96
495	840734		228	365	HSRFE65
496	840736	small nuclear ribonucleic protein [Homo sapiens] Length = 92	58	342	100 HSRFE95
497	840737		3	341	HSSFS95
498	840739		196	561	HSLJW05
499	840746	similar to mouse CCL. [Homo sapiens] >sp Q92601 Q92601 MYELOBLAST KIAA0202. Length = 1591	452	1420	85 HSLH31
500	840748	cytoplasmic antiproteinase, CAP=38 kda intracellular serine proteinase inhibitor [human, placenta, Peptide, 376 aa] [Homo sapiens] Length = 376	65	1441	96 HSRGX11
501	840750	(AC002339) putative ABC transporter [Arabidopsis thaliana] >sp O22950 O22950 ABC TRANSPORTER ISOLOG, 3' PARTIAL (FRAGMENT). Length = 664	507	845	62 HSODA53
502	840751	MYOSIN LIGHT CHAIN KINASE, SMOOTH MUSCLE AND NON-MUSCLE ISOZYMES (EC 2.7.1.117) (MLCK) [CONTAINS: TELOKIN]. Length = 1913	3	2519	90 HTEFV12

503	840757	(AB005624) rig-analog DNA-binding protein [Sus scrofa] >gi306898 rig-analog protein (putative); putative [Homo sapiens] >gi337416 human homologue of rat insulinoma gene (rig); putative [Homo sapiens]	gnl PID d1022359	236	568	100	100	100	IKBA1.84
504	840759	transcription factor ZFM1 [Homo sapiens] >sp Q15913 Q15913 TRANSCRIPTION FACTOR ZFM1. Length = 571	gi 1100209	481	2073	100	100	100	ISLDB56
505	840760	FORMATE ACETYLTRANSFERASE 2 (EC 2.3.1.54) (PYRUVATE FORMATE-LYASE 2) (FRAGMENT). Length = 716	sp D1036490 D1036490	233	529		100		HSKDG51
506	840770	glyoxalase I [Homo sapiens] >gnl PID d1003075 lactoyl glutathione lyase [Homo sapiens] >pir A46714 A46714 lactoylglutathione lyase (EC 4.4.1.5) - human	gi 183258	107	673	99	99	99	HSKDK35
508	840789	(AC003003) Homolog of rat B/K protein product [Homo sapiens] >sp O43330 O43330 HUMAN HOMOLOGUE OF RAT B/K PROTEIN PRODUCT (FRAGMENT). Length = 361	gi 2865208	1	657	93	93	93	IIIIPSI20
509	840790	polynucleotide phosphorylase (PNPase) [Bacillus subtilis] >gi 1184680 polynucleotide phosphorylase [Bacillus subtilis]		216	347				IIKSC89
510	840791	>pir S70691 S70691 polyribonucleotide nucleotidyltransferase (EC 2.7.7.8) alpha chain prpA - Bacillus subtilis		2	817				HHSGD58
511	840798	>sp P50849 PNPA_BACSU POL (AB001915) NG,NG-dimethylarginine dimethylaminohydrolase [Homo sapiens] Length = 285	gnl PID e1185260	2	493	41	66	66	IIIERQ85
512	840802		gnl PID d1038106	1	618	97	98	98	IIHFESI5



513	840803	zinc finger protein [Molgula oculata] >sp Q25473 Q25473 ZINC FINGER PROTEIN. Length = 558	gi 308967	1	1935	36	63	HHHRC56
514	840809			2	208			HHHEPE84
515	840811			1	690			HHHFBP51
516	840813			2	214			HHHEMJ45
517	840814	(AL022162) dJ454M7.1.1 (Lowe Oculocerebrorenal Syndrome protein OCRL-1) (isoform 1) [Homo sapiens] >gnl PID e244699 Lowe oculocerebrorenal syndrome (OCRL) [Homo sapiens] {SUB 336-813} Length = 813 (AB004903) STAT induced STAT inhibitor-2 [Homo sapiens] >gi 3265033 (AF037989) STAT- induced STAT inhibitor-2 [Homo sapiens] >sp O14508 O14508 STAT INDUCED STAT INHIBITOR-2. Length = 198	gnl PID e1371023	2	154	100	100	HGBIC73
518	840817		dbj AB004903_1	85	864	99	99	HHHEBI06
519	840825			2	436			HHHEAB14
520	840826			2022	2360			HHHBF061
521	840827			14	817			HHHEAI66
522	840828	Cleavage and Polyadenylation Specificity Factor protein [Bos taurus] >sp P79101 P79101 CLEAVAGE AND POLYADENYLATION SPECIFICITY FACTOR PROTEIN. Length = 684	gnl PID e225428	2	1180	98	99	HHHEAK56
523	840829			130	618			HHFVIE96
524	840831			1166	1447			HHFXCN75
525	840836			18	566			HHFXKK43
526	840837	(AC005757) R32611_2 [Homo sapiens] >sp O75865 O75865 R32611_2 (FRAGMENT). Length = 160	gi 3688090	322	759	62	80	HGBAG76
527	840838	(AF006386) axonemal dynein light chain [Homo sapiens] >sp O14645 O14645 AXONEMAL DYNEIN LIGHT CHAIN. Length = 257	gi 2352534	2	832	100	100	HHFXJP72

528	840841	(AC002333) molybdenum cofactor biosynthesis protein E isolog [Arabidopsis thaliana]	gij2281094	2	790	41	51	IIGAMD29
529	840842	>sp O22827 O22827 MOLYBDENUM COFACTOR BIOSYNTHESIS PROTEIN E ISOLOG. Length = 198		216	791			HFPCCK56
530	840843	Gu protein [Homo sapiens] >pir PC6010 PC6010 RNA helicase Gu - human (fragment)	gij1230564	12	791			HFVGM54
531	840845	>sp Q13436 Q13436 NUCLEOLAR RNA HELICASE GU (FRAGMENT). Length = 801		669	1031			IIGBBY80
532	840847	argininosuccinate lyase [Homo sapiens] >gij179091 argininosuccinate lyase [Homo sapiens] >pir A31658 WZHURS		151	1044			HFPCN94
533	840851	argininosuccinate lyase (EC 4.3.2.1) - human Length = 464		470	2047			HFVXS46
534	840853	(AF064244) intersectin long form [Homo sapiens] >sp G3859855 G3859855 INTERSECTIN LONG FORM. >gij3859853 (AF064243) intersectin short form [Homo sapiens] {SUB 1-1220} >gij3930533 (AF064247) intersectin long form [Homo sapiens] {SUB 1209-1263} Length = 172	gij3859855	15	224			HFOXV75
535	840854			149	1183			HFVSK03
536	840858			249	833			HFPCP42
537	840859			3	1163	63	74	IIFOYQ50
538	840863			1	165			HFIIW33
539	840868		gij179089	2	1678	99	99	HFKEN53
540	840869		gij3859855	33	632	74	88	HFKEFG36
541	840870			505	831			HFKEFN13
542	840875			3	617			HFETH86

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543	840876	(AC004392) Contains similarity to gb U51898 Ca2+-independent phospholipase A2 from Rattus norvegicus. [Arabidopsis thaliana] >sp O80693 O80693 F8K4.6 PROTEIN. Length = 1265	gi 3367519	1	1110	45	70	HFIZQ25
544	840881	histone H2B.1 [Homo sapiens] >gn PID e1301465 (AJ223353) Histone H2B [Homo sapiens] >gi 51306 histone H2B-291B (AA 1 - 126) [Mus musculus] >pir S04153 S04153 histone H2B (clone 291B) - mouse >pir F40335 F40335 histone H2B.1 (b) - human >sp E1301465 E1301	gi 184080	3	449	77	77	HFHR54
545	840883	(AJ000506) Homeodomain protein Meis2c [Mus musculus] >sp P97367 MEI2_MOUSE HOMEBOX PROTEIN MEIS2 (MEIS1- RELATED PROTEIN 1). Length = 477	gn PID e330082	3	428			HFHIA80
546	840886			71	964	90	90	HHPDW66
547	840887	RNA polymerase I subunit A12.2		1202	1600			HFHR82
548	840891	[Saccharomyces cerevisiae] >gi 1019685 ORF YJR063w [Saccharomyces cerevisiae] >gi 531231 RNA polymerase I A12.2 subunit [Saccharomyces cerevisiae] >gi 1015737 ORF YJR063w [Saccharomyces cerevisiae] >pir A48107 A48107 DNA-dir histone H2B [Homo sapiens] >pir 37445 37445 histone H2B.1 - human >sp P33778 H2B0_HUMAN HISTONE H2B.1. {SUB 2-126} Length = 126	gi 172462	250	375	64	86	HFEBQ77
549	840892		gi 31977	3	410	98	98	HFEBK16

550	840894	(AF002697) E1B 19K/Bcl-2-binding protein Nip3 [Homo sapiens] >sp O14620 O14620 E1B 19K/BCL-2-BINDING PROTEIN NIP3. Length = 194	gi 2511529	1	705	80	80	HFIIO60
551	840896	Cdc73p [Saccharomyces cerevisiae] >pir S59383 S59383 probable membrane protein YLR418c - yeast (Saccharomyces cerevisiae) >sp Q06697 Q06697 CHROMOSOME XII COSMID 9931. Length = 393	gi 632679	425	1249	28	57	HFIAL02
552	840897	syntaxin-4 [Homo sapiens] >gnl PIDe332032 (AJ00541) syntaxin 4 precursor [Homo sapiens] >gi 2570870 (AF026007) syntaxin 4 [Homo sapiens] >pir S52726 S52726 syntaxin-4 - human Length = 297	gi 758105	3	1142	100	100	HFIW49
553	840898	DNA fragmentation factor-45 [Homo sapiens] >sp O00273 DF45_HUMAN DNA FRAGMENTATION FACTOR-45 (DFF-45). Length = 331	gi 2065561	2	265	95	95	HFEI76
554	840904			396	1802			HETIW62
555	840905			3	1100			HETBS69
556	840908	KIAA0156 gene product is related to Xenopus nucleolin. [Homo sapiens] >sp Q15020 Q15020 ORF. Length = 963	gnl PID d1010577	348	2081	87	87	HETCI63
557	840909	3-methyl-adenine DNA glycosylase [Homo sapiens] Length = 298	gnl PID e224269	2	949	94	94	HIEQAN83
558	840910	MAL protein [Homo sapiens] >gi 435478 MAL-a gene product [Homo sapiens] >gnl PID e1192240 MAL. [Homo sapiens] >pir A29472 A29472 T-cell surface glycoprotein MAL, splice form a - human	gi 307157	103	348	86	93	HFKID68
559	840912			1530	1754			HHPBB92
560	840916			1	432			HETJW92

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561	840917	(AF020038) NADP-dependent isocitrate dehydrogenase [Homo sapiens] >gi 3641398	518	886	99	99	HEFIZ12
562	840918	(AF020038) NADP-dependent isocitrate dehydrogenase [Homo sapiens]	231	1508			HAJCO38
563	840922		839	1033			HELG882
564	840923		1044	1289			HEQAN39
565	840927		119	364			HEMFI44
566	840928		2	1258			HEMCG01
567	840929	helix-loop-helix phosphoprotein [Homo sapiens] >gi 292037	3	662	92	92	HEFOMQ95
568	840930	(AF002282) alpha-actinin-2 associated LIM protein [Homo sapiens] >sp O60440 O60440 ALPHA-ACTININ-2 ASSOCIATED LIM PROTEIN. Length = 316 similar to thiolesterase;	3	1019	99	99	HEGAD28
569	840931		1	1164	49	67	HEMFC70
570	840941		2	781			HEGAL15
571	840944	cofactor E [Homo sapiens] >sp Q15813 Q15813 COFACTOR E. Length = 527	822	1685	98	98	HELFC44
572	840945		1067	1435			HEEAS77
573	840948	lanosterol synthase [human, fetal liver, Peptide, 732 aa] [Homo sapiens] >gnl PID d1010523 lanosterol synthase [Homo sapiens] >gi 951314 2,3-oxidosqualene-lanosterol cyclase [Homo sapiens] >pir JC4194 JC4194 lanosterol synthase (EC 5.4.99.7) - human >sp P	3	326	99	100	HE9ST22

574	840949	(AJ005324) glutamate permease [synthetic construct] >gnl PID e1360147 (AJ005327) glutamate permease [synthetic construct] >gnl PID e1360153 (AJ005330) glutamate permease [synthetic construct] Length = 459 P43=mitochondrial elongation factor homolog [human, liver, P'ptide, 452 aa] [Homo sapiens] >pir 53499 53499 translation elongation factor TU-like protein P43, mitochondrial - human Length = 452 RNase L inhibitor (clone 8) - human Length = 599	gnl PID e1360141	3	101	95	95	11E9RM92
575	840953		bbs 160014	1	1437	100	100	11E1G1M94
576	840954		pir S63672 S63672	69	1949	95	95	11E91IC20
577	840958	FUSE binding protein 2 [Homo sapiens] >sp Q92945 Q92945 FUSE BINDING PROTEIN 2 (FRAGMENT). Length = 652 phosphomannose isomerase [Homo sapiens] >pir S41122 S41122 mannose-6-phosphate isomerase (EC 5.3.1.8) - human >sp P34949 MANA_HUMAN MANNOSE-6-PHOSPHATE ISOMERASE (EC 5.3.1.8) (PHOSPHOMANNOSE ISOMERASE) (PMI) (PHOSPHOHEXOMUTASE). {SUB 2-423} Length = 423	gil 575607	154	465	57	58	11FLVB33
578	840960		gil 416017	224	670	100	100	11E9AD70
579	840968			375	2222			11E3BF129
580	840969			1054	1530			11E9PB53
581	840972			1	387			11E8U114
582	840973			548	874			11E9DI168
583	840975			1	159			11E9GO90
584	840978			1433	1765			11E9NG78

585	840980	nerve growth factor [Homo sapiens] >gi32031 pleiotrophin [Homo sapiens] >bbs119887 pleiotrophin, PTN [human, Peptide, 168 aa] [Homo sapiens] >bbs130735 heparin-binding neurite outgrowth promoting factor, HBNF {alternatively spliced} [human, Peptide, 16	gij183890	75	833	90	90	HEBFE14
586	840982			81	359			HE8ES49
587	840985			3	830			HE8UK50
588	840989	(AB016247) sterol-C5-desaturase [Homo sapiens] >sp O75845 O75845 STEROL-C5- DESATURASE (EC 1.3.3.2) (LATHOSTEROL OXIDASE). Length = 299 (AF032886) forkhead protein [Homo sapiens] >sp O43524 O43524 FORKHEAD PROTEIN. Length = 673 ATP:citrate lyase [Homo sapiens] >sp Q13037 Q13037 ATP:CITRATE LYASE. Length = 1101 LIV-1 protein [Homo sapiens] >pir G02273 G02273 LIV-1 protein - human >sp Q13433 Q13433 ESTROGEN REGULATED LIV-1 PROTEIN. Length = 752	gnl PID d1034698	107	1027	99	100	HE8FM74
589	840991		gij2895494	861	1559	81	81	HE8FA09
590	840996		gij603074	818	1906	99	99	HE8MY23
591	840997		gij1256001	3	1193	75	75	HE8DR57
592	840998			1	390			HE2BN26
593	840999			855	1013			HE8DJ30
594	841000			1	279			HE6DC57
595	841002			363	812			HE8BT63
596	841003			94	315			HE2DX28
597	841008	Aop1_Human, MER5(Aop1_Mouse)-like protein [Homo sapiens] >gij854126 humer [Homo sapiens] {SUB 227-256} Length = 256	gnl PID d1008985	1	672	99	99	HE8AU49

598	841013	(AB011004) UDP-N-acetylglucosamine pyrophosphorylase [Homo sapiens] >sp Q16222 Q16222 AGX-1 ANTIGEN (FRAGMENT). Length = 505	gn PI D d1032151	265	1836	99	99	IIDT'AU64
599	841014	fumarate precursor [Homo sapiens] >gi 4097195 fumarate [Homo sapiens] >sp P07954 FUMH_HUMAN FUMARATE HYDRATASE, MITOCHONDRIAL PRECURSOR (EC 4.2.1.2) (FUMARASE). >sp G4097195 G4097195 FUMARASE (EC 4.2.1.2). Length = 510	gi 1545996	178	1185	96	96	IIE2EB32
600	841015	Ran [Canis familiaris] >gi 190879 ras-like protein [Homo sapiens] >gi 2967848 (AF052578) androgen receptor associated protein 24 [Homo sapiens] >gi 727167 Ran [Mus musculus] >bbs 180269 GTP-binding protein [mice, C3H/HeJ spleens, LDS responder, Peptide, 2	gi 924	48	425	100	100	IIE2DT31
601	841018			1	150			HE2EA79
602	841019			94	228			HDTGC76
603	841024			34	750			HE9CO25
604	841025	Id-2H [Homo sapiens] >pir A40227 A40227 transcription repressor Id-2 - human >sp Q02363 ID2_HUMAN DNA-BINDING PROTEIN INHIBITOR ID-2. Length = 134	gn PI D d1003496	75	401	100	100	IIDT'DZ04
605	841026			3	599			HD'TGP42
606	841027			1	489			HDRMB48
607	841029			1	528			IIDTAG94
608	841030			515	721			IIDT'GK45
609	841031			23	145			IIDSAL27



610	841034	G-rich sequence factor-1 [Homo sapiens] >gil517196 G-rich sequence factor-1 [Homo sapiens] >sp Q12849 GRF1_HUMAN G-RICH SEQUENCE FACTOR-1 (GRSF-1) >pir S48081 S48081 GRSF-1 protein - human (fragment) {SUB 94-424} Length = 424	gil517196	267	449	95	98	IIDQDI160
611	841036			1201	1542			IIDP1M31
612	841039	(AC002340) putative RNA helicase A, 5' partial [Arabidopsis thaliana] >sp O49345 O49345 PUTATIVE RNA HELICASE A, 5' PARTIAL (FRAGMENT). Length = 1114	gil2880057	763	2112	60	76	IIDQFB71
613	841040	(AF071202) ABC transporter MOAT-B [Homo sapiens] >sp G3335173 G3335173 ABC TRANSPORTER MOAT-B. Length = 1325	gil3335173	2	1339	92	92	IIDQDF77
614	841048			1	1338			IIDPXU60
615	841049	(AC003682) ZNF134 [Homo sapiens] >sp G2689444 G2689444 ZNF134. Length = 427	gil2689444	3	347	97	97	IIDPKK77
616	841050	monoamine oxidase A [Homo sapiens] >gil187353 monoamine oxidase A [Homo sapiens] >gil187355 monoamine oxidase A [Homo sapiens] >pir A36175 A36175 amine oxidase (flavin-containing) (EC 1.4.3.4) A - human >sp P21397 AOFA_HUMAN AMINE OXIDASE [FLAVIN-CONTAINI	gil187351	705	947	95	95	IIDPUP64
617	841052			1	1194			IIDPRJ46
618	841054			60	1262			IIDPXL80
619	841055			23	346			IIDPMK92
620	841056			492	695			IIDPV133
621	841060			612	851			IIDPXB24

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622	841061	quinone oxidoreductase [Homo sapiens] >gil516534 quinone oxidoreductase2 [Homo sapiens] >pirA32667A32667 NAD(P)H dehydrogenase (quinone) (EC 1.6.99.2) 2 - human Length = 231	gil190818	21	614	100	100	111P1BQ60
623	841062	histone deacetylase HD1 [Homo sapiens] >sp Q13547 HDA1_HUMAN HISTONE DEACETYLASE 1 (HD1). Length = 482 (AL009194) SWISS-PROT:P38861; NONSENSE-MEDIATED MRNA DECAY PROTEIN 3.; SACCHAROMYCES CEREVISIAE	gil1277084	67	1530	90	90	111D1PPA96
624	841063	mannosyl-oligosaccharide 1,2-alpha-mannosidase (EC 3.2.1.113) - rabbit (fragment) >gil474282 mannosyl-oligosaccharide alpha-1,2-mannosidase [Oryctolagus cuniculus] (SUB 12-480) Length = 480	gil1251068	2	592	69	82	111D1PQ57
625	841067	14-3-3 protein [Homo sapiens] >gil32464 HSI gene product [Homo sapiens] >pirS15076 S15076 protein kinase regulator 14-3-3 - human >sp P27348 I43T_HUMAN 14-3-3 PROTEIN TAU (14-3-3 PROTEIN THETA) (14-3-3 PROTEIN T-CELL) (HSI PROTEIN). >gil3387922 (AF070556)	pirB54408 B54408	2	592	59	83	111D1PQE64
626	841074	(AE000715) ribosomal protein L20 [Aquilifex aeolicus] >pir C70382 C70382 ribosomal protein L20 - Aquifex aeolicus >sp O67086 O67086 50S RIBOSOMAL PROTEIN L20. Length = 118	gil23222	188	907	98	99	111E8NS76
627	841076			96	755			111D1PMG95
628	841081		gil2983472	2	541	41	65	111D1PQC09
629	841083			1	480			111D1PCX80
630	841089			321	551			111D1PND16

631	841093	(AF035646) Rab10 [Mus musculus] >sp O88386 O88386 RAB10. Length = 200	gi 3406428	479	1132	100	100	100	IIDPP129
632	841097	(AF090867) guanosine monophosphate reductase [Rattus norvegicus] >sp G3907579 G3907579 GUANOSINE MONOPHOSPHATE REDUCTASE. Length = 345	gi 3907579	267	1061	78	90	90	IIDPI1378
633	841098	GATA-binding protein [Homo sapiens] >pir A40815 A40815 transcription factor GATA- 2 (version 1) - human >sp P23769 GAT2_HUMAN ENDOTHELIAL TRANSCRIPTION FACTOR GATA-2. Length = 480	gi 182996	1	384	90	91	91	IIDABX64
634	841101	phosphatidylcholine transfer protein [Bos taurus] >pir A91092 EPBO phosphatidylcholine transfer protein - bovine >sp P02720 PPCT_BOVIN PHOSPHATIDYLCHOLINE TRANSFER PROTEIN (PC-TP). Length = 213	gi 710419	3	1004	35	55	55	IIDPBQ32
635	841113	2-hydroxyhepta-2,4-diene-1,7-dioate isomerase (hpcE) [Methanococcus jannaschii] >pir F64506 F64506 2-hydroxyhepta-2,4-diene- 1,7-dioate isomerase homolog - Methanococcus jannaschii >sp Q59050 Q59050 HYPOTHETICAL PROTEIN MJ1656. Length = 237	gi 1500558	133	1137	50	74	74	IIDBA185
636	841115			58	396				IIDLA262
637	841116			47	682				IIDPB161
638	841117			1	1179				IIDFMB93
639	841125			1	117				IICYBI78
640	841127			2	859				IIDABQ85

641	841128	collagenase stimulatory factor [Homo sapiens] >gi 1209374 amino acid feature: intracellular domain, aa 707 .. 829; amino acid feature: transmembrane domain, aa 638 .. 706; amino acid feature: extracellular domain, aa 86 .. 637 [Homo sapiens] >gi 34449 M6	gi 409357	64	891	100	100	100	IIDPFI118	
642	841132	myosin-I, Myr 1c (alternatively spliced) - rat Length = 1078	pir B45439 B45439	1	1428				IIDPFI170	
643	841133			4	1710	89	91		HCYBL17	
644	841134	gamma SNAP [Homo sapiens] Length = 312 homologous to mouse gene PC326:GenBank Accession Number M95564 [Homo sapiens] >sp Q12839 Q12839 (H326). Length = 597	gi 1685288 gi 458692	2	802	100	100	100	IIDAAC32	
645	841135			124	765	81	81		IIDABE30	
646	841136	imogen 38 [Homo sapiens] >sp Q92665 Q92665 IMOGEN 38. Length = 395	gnl P1D1e 218584	514	735	80	80	80	IICQDI195	
647	841138			3	1238				IIDAABK25	68
648	841139	(AF038957) translation initiation factor 4e [Homo sapiens] >sp O75349 O75349 TRANSLATION INITIATION FACTOR 4E. Length = 236	gi 3329384	347	478				IICQBI160	
649	841141			192	833					IIDPBQ85
650	841142			452	1051					HCQAM05
651	841145			1022	1366					HCNSQ35
652	841146			864	1061					HCMSW06
653	841150			115	387		83	86		IICQAG10

654	841153	argininosuccinate synthetase [Homo sapiens] >gil28872 arginosuccinate synthetase (aa 1-412) [Homo sapiens] >pir A01195 AJHURS argininosuccinate synthase (EC 6.3.4.5) - human >sp P00966 ASSY_HUMAN ARGININOSUCCINATE SYNTHASE (EC 6.3.4.5) (CITRULLINE--ASPA (AF084260) signalosome subunit 2 [Homo sapiens] >gil3639069 (AF087688) alien-like protein [Mus musculus] >sp O88950 O88950 ALIEN-LIKE PROTEIN. >sp G3514097 G3514097 SIGNALOSOME SUBUNIT 2. >gil3309166 (AF071312) COP9 complex subunit 2 [Mus musculus] {SUB 4 carcinoma-associated antigen GA733-2 [Homo sapiens] >gil182906 carcinoma-associated antigen GA733-2 [Homo sapiens] >pir B48149 B48149 epithelial glycoprotein antigen GA733-2 precursor - human Length = 314	gil179057	1207	2532	96	96	HCVYBC10
655	841154	(AF084260) signalosome subunit 2 [Homo sapiens] >gil3639069 (AF087688) alien-like protein [Mus musculus] >sp O88950 O88950 ALIEN-LIKE PROTEIN. >sp G3514097 G3514097 SIGNALOSOME SUBUNIT 2. >gil3309166 (AF071312) COP9 complex subunit 2 [Mus musculus] {SUB 4 carcinoma-associated antigen GA733-2 [Homo sapiens] >gil182906 carcinoma-associated antigen GA733-2 [Homo sapiens] >pir B48149 B48149 epithelial glycoprotein antigen GA733-2 precursor - human Length = 314	gil3514097	1	1368	100	100	HCM5B29
656	841156	(AF084260) signalosome subunit 2 [Homo sapiens] >gil3639069 (AF087688) alien-like protein [Mus musculus] >sp O88950 O88950 ALIEN-LIKE PROTEIN. >sp G3514097 G3514097 SIGNALOSOME SUBUNIT 2. >gil3309166 (AF071312) COP9 complex subunit 2 [Mus musculus] {SUB 4 carcinoma-associated antigen GA733-2 [Homo sapiens] >gil182906 carcinoma-associated antigen GA733-2 [Homo sapiens] >pir B48149 B48149 epithelial glycoprotein antigen GA733-2 precursor - human Length = 314	gil182906	6	1130	86	86	HCTAA60
657	841157	collagen pro-alpha-1 type I chain [Mus musculus] >pir S57243 S21626 collagen alpha 1(I) chain precursor - mouse >sp P11087 CA11_MOUSE PROCOLLAGEN ALPHA 1(I) CHAIN PRECURSOR. >gil192262 pro-alpha-1 type I collagen [Mus musculus] {SUB 518-1128} >gil192264 p	gil470674	88	336	36	42	HCTHCJ07
658	841159			510	818			HCLCK84
659	841164			2	463			HCHAZ66
660	841167			982	1305			HCHOG20

661	841170	SRp30c [Homo sapiens] >gnl PID e1248292 (AL021546) pre-mRNA splicing factor SRp30c [Homo sapiens] >gil4099429 splicing factor SRp30c [Homo sapiens] >pir S59075 S59075 splicing factor SRp30c - human >sp G4099429 G409429 SPLICING FACTOR SRP30C. Length = 22	gil1049078	2	760	81	81	HCHOE21
662	841173	spermidine synthase [Homo sapiens] >pir A32610 A32610 spermidine synthase (EC 2.5.1.16) - human Length = 302	gil338394	2	931	97	97	HCIBQ07
663	841176	thyroid receptor interactor [Homo sapiens] Length = 152		561	683			HCFOL36
664	841178	(AF029777) hGCN5 [Homo sapiens] >sp G3220164 G3220164 HGCN5. >gil1491935 histone acetyltransferase [Homo sapiens] {SUB 362-837} >sp G1911495 G1911495 HGCN5=TRANSCRIPTIONAL ADAPTOR. {SUB 411-837} Length = 837	gil703110	65	460	99	100	HCGBQ34
665	841180	70 K protein (AA 1-614) [Homo sapiens] >pir A25707 A25707 UI snRNP 70K protein - human >gil337447 small ribonucleoprotein 70 kd protein [Homo sapiens] {SUB 178-614} >gil602021 hUI-70K protein (302 AA) [Homo sapiens] {SUB 227-527} Length = 614	gil3220164	553	1530	97	97	HCGLC82
666	841181			2	283			HCFMN22
667	841182	DNA repair endonuclease subunit [Homo sapiens] Length = 905	gil36100	251	988	100	100	HCFNJ56
668	841185			342	536			HCFNF67
669	841187			458	1096			HCGAA74
670	841188		gil1524411	2	2749	92	92	HCFMK76
671	841189			336	926			HCFMC34

672	841192	methyImalonyl-CoA mutase [Homo sapiens] >sp P22033 MUTA_HUMAN METHYLMALONYL-COA MUTASE PRECURSOR (EC 5.4.99.2) (MCM). Length = 750	gil187452	1	1428	99	99	11CFMO54
673	841194	(AF039405) arsenite-translocating ATPase [Mus musculus] >sp O54984 O54984 ARSENITE- TRANSLOCATING ATPASE. Length = 350	gil2745900	182	1138	95	95	11CGAB52
674	841195	(AF015037) endooligopeptidase A related protein; EOPA related protein [Oryctolagus cuniculus] >sp O46480 O46480 ENDOOLIGOPEPTIDASE A RELATED PROTEIN (FRAGMENT). Length = 667	gil2827886	3	623			11CEWN129
675	841198			2	913			11CFBC32
676	841200			35	703	75	81	11CEER84
677	841201	rhoB [Homo sapiens] >gil206656 rhoB [Rattus norvegicus] >gnl PID e258480 RHOB [Mus musculus] >pir A01372 TVHURH GTP-binding protein rhoB - human >pir A39727 TVRTRH GTP-binding protein rhoB - rat >pir JC5075 JC5075 GTP-binding protein rhoB - mouse >gil3373	gil36032	158	571	100	100	11CEBD63
678	841202			66	1229			11CTIOV21
679	841209	PTB-associated splicing factor [Homo sapiens] >pir A46302 A46302 PTB-associated splicing factor, long form - human >gil23712 myoblast antigen 24.1D5 [Homo sapiens] {SUB 312-707} >gil4063717 (AF110499) PTB-associated splicing factor [Mus musculus] {SUB 377	gil38458	1	552			11CDMF27
680	841210			2	1405	93	93	11CEMT64

681	841213	G9a [Homo sapiens] >pir S30385 S30385 G9a protein - human >sp Q14349 Q14349 G9A PROTEIN CONTAINING ANKYRIN-LIKE REPEATS. Length = 1001	gi 287865	3	344	82	84	HCLEFE38
682	841217			2	1198			HCEIV79
683	841219	SMOOTH MUSCLE MYOSIN HEAVY CHAIN (FRAGMENT). Length = 1052	sp D1037960 D1037960	208	774	95	97	IIBZSI02
684	841222			29	856			HCDC163
685	841223			2088	2486			HCEBW38
686	841224	RNA polymerase II elongation factor ELL2 [Homo sapiens] >sp O00472 ELL2_HUMAN RNA POLYMERASE II ELONGATION FACTOR ELL2. Length = 640	gi 1946347	2	2032	95	95	HCE2DI5
687	841226			2	373			IICCMD50
688	841227			1	831			HBZAK55
689	841228	F25H9.7 [Caenorhabditis elegans] >gnl PID e1346003 F25H9.7 [Caenorhabditis elegans] >sp P91989 P91989 F25H9.7 PROTEIN. Length = 154	gnl PID e1346003	3	407	46	62	HCDEA07
690	841231			279	977			IIBXCC66



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691	841232	MHC HLA-RD protein [Homo sapiens] >pir A33640 A33640 class III histocompatibility antigen RD - human Length = 382	gi 386949	3	461	94	95	11C1E1S91
692	841233	(AF069984) nitrilase homolog 1 [Homo sapiens] >gi 3228666 (AF069987) nitrilase 1 [Homo sapiens] >sp O76091 O76091 NITRILASE HOMOLOG 1. Length = 327	gi 3242978	2	673	94	95	HBUAF56
693	841234	(AJ005073) Alix [Mus musculus] >sp O88695 O88695 ALIX. Length = 869	gnl PID e1318710	561	2564	89	91	11BWC170
694	841236			187	483			11BXGB85
695	841238			168	389			11BXFF92
696	841239			405	605			HBMU108
697	841242			169	360			HBNAT03
698	841243			3	281			HBMTO45
699	841248	phorbol 3 [Homo sapiens] >sp G4097433 G4097433 PHORBOLIN 3. Length = 235	gi 4097433	3	668	46	62	11BUAC02
700	841250			2	1309			11BIEC31
701	841251			5	247			HBJLL24
702	841254			879	1136			11BZSH07
703	841263			1	354			11BJDS57
704	841266			182	337			11BJFN11
705	841269	(AL021958) fadE9 [Mycobacterium tuberculosis] >sp O53815 O53815 ACYL-COA DEHYDROGENASE. Length = 390 p67 myc protein [Homo sapiens] >sp D1001846 D1001846 P67 MYC PROTEIN (FRAGMENT). Length = 454	gnl PID e1253290	93	1130	51	70	11BIDAC79
706	841272		gnl PID d1001846	20	622	100	100	11BJF136
707	841273			697	948			11BFMD57
708	841276			244	423			11BNAE62

709	841277	NADH-UBIQUINONE OXIDOREDUCTASE 39 KD SUBUNIT PRECURSOR (EC 1.6.5.3) (EC 1.6.99.3) (COMPLEX I-39KD) (CI-39KD). >gil189049 NADH dehydrogenase (ubiquinone) [Homo sapiens] {SUB 3-377} Length = 377. gag polyprotein - human endogenous virus S71 Length = 608	sp Q16795 NUEM_HUMA N	2	1171	94	94	HBICG75
710	841278		pir A46312 A46312	119	415	44	56	HA7IDB46
711	841279			187	645			IIPIAF81
712	841280	(AF061513) candidate adaptor protein CED-6 [Caenorhabditis elegans] >sp O76337 O76337 CANDIDATE ADAPTOR PROTEIN CED-6. Length = 492	gil3253308	888	1823	50	69	HBCAS37
713	841282			219	368			HA7AM48
714	841283			2530	2880			HBAFSS9
715	841286	(AC003096) putative protein phosphatase 2C [Arabidopsis thaliana] >sp O64583 O64583 HYPOTHETICAL 26.4 KD PROTEIN. Length = 239	gil3132471	201	1319	57	80	HAHCP59
716	841287			3	248			HARMV18
717	841288	(AL021428) hypothetical protein Rv0068 [Mycobacterium tuberculosis] >sp O53613 O53613 OXIDOREDUCTASE. Length = 303	gnl PIDe1245998	3	821			FIARMM85
718	841291	selenoprotein P [Homo sapiens] Length = 381		293	1012	88	89	HBMCL13
719	841292	SSR gamma subunit [Rattus norvegicus] >pir S33294 S33294 translocon-associated protein gamma chain - rat Length = 185	gnl PIDe1192260 gil312702	2	664	98	98	HARA152
720	841294	microtubule associated protein [Homo sapiens] >pir J37356 J37356 epithelial microtubule- associated protein, 115K - human >sp Q14244 Q14244 MICROTUBULE ASSOCIATED PROTEIN. Length = 749	gil414115	3	1265	99	99	HAPOK25

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721	841296	protein disulfide isomerase-related protein [Homo sapiens] >pir A23723 A23723 protein disulfide-isomerase (EC 5.3.4.1) ERp72 precursor - human >sp P13667 ER72_HUMAN PROTEIN DISULFIDE ISOMERASE-RELATED PROTEIN PRECURSOR (ERP72). Length = 645 Gps1 [Homo sapiens] >pir G01646 G01646 Gps1 - human >sp Q13098 GPS1_HUMAN G PROTEIN PATHWAY SUPPRESSOR 1 (GPS1 PROTEIN) (MFH PROTEIN). (SUB 30-500) Length = 500	gi 181508	2	1405	96	96	HASAS34
722	841298		gi 644879	3	1067	91	91	HAATA149
723	841301	synexin [Homo sapiens]		10	231			IAPNO69
724	841303	>sp P20073 ANX7_HUMAN ANNEXIN VII (SYNEXIN). Length = 466 (AB000199) CCA2 protein [Rattus norvegicus] >sp O35048 O35048 CCA2 PROTEIN. Length = 338	gi 338244	3	1457	100	100	HAOMG39
725	841304		dh j AB000199_1	3	707	89	95	IAPN1E10
726	841305	similar to RNA binding protein;		399	1274			IAMHID70
727	841309	>sp Q19706 IF35_CAEEL PROBABLE EUKARYOTIC TRANSLATION INITIATION FACTOR 3 RNA-BINDING SUBUNIT (EIF-3 RNA-BINDING SUBUNIT) (EIF3 P33) (TRANSLATION INITIATION F	gn PID e 345859	137	1699	48	63	IAPAJ60
728	841314	(AJ224819) tumor suppressor [Homo sapiens]		3	920			HAMGN09
729	841316	>sp O60858 O60858 TUMOR SUPPRESSOR. Length = 407	gn PID e 292742	185	1420	93	93	HJCP55

730	841318	replication control protein 1 [Homo sapiens] >pir G02329 G02329 replication control protein 1 - human >sp Q13471 Q13471 REPLICATION CONTROL PROTEIN 1. Length = 861	gnl 1171204	170	436	100	100	11AMFQ80
731	841321	hnRNP A2 protein [Homo sapiens] >gnl PID d1006583 hnRNP A2 protein [Homo sapiens] >gi 500638 hnRNP protein A2 [Homo sapiens] Length = 341	gi 337449	3	656	100	100	HBJMK69
732	841324	chimeric IFNalpha/beta-receptor [Homo sapiens] >gi 306914 interferon-alpha receptor precursor [Homo sapiens] >pir A32694 A32694 interferon alpha receptor precursor - human >sp P17181 INR1_HUMAN INTERFERON- ALPHA/BETA RECEPTOR ALPHA CHAIN PRECURSOR (IFN-ALP	gnl PID e251628	31	1755	99	99	11AMGF04
733	841326	Rch1 [Homo sapiens] >gi 899539 hSRP1alpha [Homo sapiens] >pir A5616 A5616 nuclear localization sequence receptor SRP1 alpha - human >sp P52292 HMA2_HUMAN IMPORTIN ALPHA-2 SUBUNIT (KARYOPHERIN ALPHA-2 SUBUNIT) (SRP1-ALPHA) (RAG COHORT PROTEIN 1). Length	gi 791185	3	1715	97	97	11AMFV20
734	841328	nuclear ribonucleoprotein [Homo sapiens] >gi 35772 polypirimidine tract binding protein [Homo sapiens] >pir S26294 S26294 polypirimidine tract-binding protein - human Length = 557	gi 32354	2	1126	89	89	11AMGF52
735	841329	dJ434P1.3 [Homo sapiens] >gi 592565 DEAD- box protein p72 [Homo sapiens] >pir S72367 S72367 ATP-dependent RNA helicase - human >sp Q92841 P72_HUMAN PROBABLE RNA-DEPENDENT HELICASE	gnl PID e1249592	93	671	100	100	11AJBV54

P72 (DEAD-BOX PROTEIN P72). Length = 650

736	841330	(AF002228) tbx3 [Homo sapiens] >sp O15119 O15119 TBX3 (FRAGMENT). Length = 468	gi 3041821	3	1097	91	91	HAJAZ71
737	841333	(AB010882) hSNF2H [Homo sapiens] >sp O60264 O60264 HSNF2H. Length = 1052	gn P1D d1026101	1	2004	92	92	HAJBA64
738	841334	SDF2 [Mus musculus] >pir C5105 JC5105 stromal cell-derived factor 2 - mouse >sp P97307 P97307 STROMAL CELL DERIVED FACTOR 2 (SDF2). Length = 211	gn P1D d1009954	3	713	59	71	HAJBE68
739	841335	transcription factor SC1 [Homo sapiens] >sp Q13176 Q13176 TRANSCRIPTION FACTOR SC1. Length = 359	gi 833833	443	946	88	89	HAJAT72
740	841336			1	1557			HAJCD33
741	841337			263	1375			HAJAO95
742	841339			27	740			HAJCB95
743	841340	cellular nucleic acid binding protein [Mus musculus] >pir 49259 49259 cellular nucleic acid binding protein - mouse Length = 178 (AF038844) MKP-1 like protein tyrosine phosphatase [Homo sapiens] >sp G4104681 G4104681 MKP-1 LIKE PROTEIN TYROSINE PHOSPHATASE. Length = 198	gi 854675	820	1017	100	100	HAJAD20
744	841341			3	359			HAJAI18
745	841342			1145	1417			HAJAI64
746	841343			263	685			HAMGIC35
747	841347		gi 4104681	161	409	100	100	HAHSE21

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748	841352	ribosomal protein L35 [Homo sapiens] >pir G01477 G01477 ribosomal protein L35 - human Length = 123	gi 562074	3	461	100	100	100	113JF14
749	841353	FKBP65 binding protein [Mus musculus] >pir 49669 49669 FKBP65 binding protein - mouse >sp Q61576 Q61576 FK506 BINDING PROTEIN 6 (65 KDA) (FKBP65 BINDING PROTEIN). Length = 581	gi 894162	73	462	96	92	1319	11A1CO69
750	841354			115	630				11APNQ64
751	841360			1	816				11AMFM60
752	841366			222	1319				11AMGA45
753	841405	cathepsin O [Homo sapiens] >gi 562757 Cathepsin O [Homo sapiens] >bbs 172248 cathepsin O2 [human, spleen, Peptide, 329 aa] [Homo sapiens] >pir JC2476 JC2476 cathepsin K (EC 3.4.22.-) precursor - human signal recognition particle receptor beta subunit [Mus musculus] >pir A56487 A56487 signal recognition particle receptor beta chain - mouse Length = 269	gi 606923	24	1106	100	100	1106	HOABW85
754	841526	DNA-binding protein [Homo sapiens] >pir S69501 S69501 DNA-binding protein A variant - human >sp Q14121 Q14121 DNA- BINDING PROTEIN. Length = 372 mitochondrial ATPase inhibitor [Rattus norvegicus] >gnl PID d1002924 ATPase inhibitor protein precursor [Rattus sp.] >pir JS0738 JS0738 ATPase inhibitor protein precursor, mitochondrial - rat >sp Q03344 ATP_RAT ATPASE INHIBITOR, MITOCHONDRIAL	gi 600886	3	848	88	86	848	11ABAD39
755	841712			3	698	76	76	817	113JJ193
756	841860			1984	2352				11PAP58
757	842042			2	817				11BMXV50
758	842453		gnl PID e219699	13	276	88	76	276	11BKDV52

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## PRECURSOR.

759	842635			268	936	HFIII20
760	842927			2	1630	HCE3G66
761	842988			940	1152	HOSAB76
762	843080			2050	2442	HDPBA08
763	843237			370	1359	HETU27
764	843381			520	777	HSGN74
765	843718	(AF010313) Pig8 [Homo sapiens] >sp O14681 O14681 PIG8. Length = 318	gj 2415302	212	262	HMEGI84
766	843823					
767	844056	(AF010187) FGF-1 intracellular binding protein [Homo sapiens] >gj 2738522 (AF010188) FGF-1 intracellular binding protein [Cercopithecus aethiops] >gj 2738520 (AF010187) FGF-1 intracellular binding protein [Homo sapiens] >gj 2738522 (AF010188) FGF-1 intrac [AF059569] actin binding protein MAYVEN [Homo sapiens] >sp G3789797 G3789797 ACTIN BINDING PROTEIN MAYVEN. Length = 593	gj 2738520	2	1414	HHESE85
				2	751	HHE8U238
768	844325		gj 3789797	46	1056	HPRSB90
769	844344	heparin-binding fibroblast growth factor receptor 2 [Rattus norvegicus] >sp Q63241 Q63241 HEPARIN-BINDING FIBROBLAST GROWTH FACTOR RECEPTOR 2 (FRAGMENT). {SUB 1-330} Length = 331	gj 310149	1	303	HIBNC37
770	844368	15 KDA SELENOPROTEIN. Length = 162	sp Q60613 Q60613	3	374	HAGIHY70

771	844408	(AF001437) dihydrolipoamide dehydrogenase-binding protein [Homo sapiens] Length = 501	gi 2316040	1358	1651	100	100	HTNAD87
772	844508	pre-pro polypeptide (AA -25 to 451) [Homo sapiens] >pir S09489 S09489 carboxypeptidase H (EC 3.4.17.10) precursor - human >sp P16870 CBPH_HUMAN CARBOXYPEPTIDASE H PRECURSOR (EC 3.4.17.10) (CPH) (CARBOXYPEPTIDASE E) (CPE) (ENKEPHALIN CONVERTASE) (PROHORMON) (AF023268) propin1 [Homo sapiens] Length = 347	gi 29667	1	300			IIADGG65
773	844867			174	371			IIMVBJ82
774	845000			1	321			HE9DB89
775	845281			3	1475	100	100	HEGAE94
776	845288	(AF023268) propin1 [Homo sapiens] Length = 347	gi 2564915	571	1107	75	76	ITLDM37
777	845750	selenium-binding protein [Homo sapiens] >pir G01872 G01872 selenium-binding protein - human >sp Q13228 Q13228 SELENIUM-BINDING PROTEIN. Length = 472	gi 1374792	3	1499	95	96	IE9DH28
778	845809	SNAP23A protein [Homo sapiens] >gnl P1D e1331767 (AJ011915) synaptosome associated protein of 23 kilodaltons, isoform A [Homo sapiens] >pir JC5296 JC5296 vesicle-membrane fusion protein SNAP-23A - human >sp O00161 O00161 VESICLE-MEMBRANE FUSION PROTEIN SN	gnl P1D e290695	134	772	100	100	IRGSE41
779	846077	FUSION PROTEIN SN		182	487			HCNEN11
780	HPFCH77R			21	80			HPFCH77
781	HPRT105R			2	151			HPRT105
782	HMSK193R			25	192			HMSK193



783	IIKAAAC88R (AB003103) 26S proteasome subunit p55 [Homo sapiens] >sp O00232 O00232 PROTEASOME SUBUNIT P55. Length = 456	gn PIPID 1020530	1	333	85	88	IIKAAAC88
784	HPDED94R (AF001212) 26S proteasome subunit 9 [Homo sapiens] >sp O00495 O00495 26S PROTEASOME SUBUNIT 9. Length = 422	gi 2150046	1	225	98	98	HPDED94
785	IIDTGH11R (AF009674) axin [Homo sapiens] >sp O15169 O15169 AXIN (FRAGMENT). Length = 900	gi 2252820	1	189	96	96	IIDTGH11
786	IIIEJR60R (AF022184) EZF [Homo sapiens] >sp O43474 EZF_HUMAN EPITHELIAL ZINC-FINGER PROTEIN EZF. Length = 470	gi 2897954	2	511	77	77	IIIEJR60
787	IIAGGY86R (AF029786) GBAS [Homo sapiens] >sp O75323 O75323 GBAS. Length = 286	gi 3403167	2	295	97	98	IIAGGY86
788	IIPIAU47R (AF031647) JAB1-containing signalosome subunit 3 [Homo sapiens] >sp O43191 O43191 SIGNALOSOME SUBUNIT 3. Length = 403	gi 2688989	3	377	89	91	IIPIAU47
789	HCGAD89R (AF074935) beta-tubulin [Cryptosporidium parvum] >gi 3328337 (AF074936) beta-tubulin [Cryptosporidium parvum] >sp O77467 O77467 BETA-TUBULIN (FRAGMENT). Length = 57	gi 3328335	226	390	86	89	HCGAD89
790	IIAPOD39R (AF089866) keratin 19 [Rattus norvegicus] >sp G376622 G376622 KERATIN 19 (FRAGMENT). Length = 123	gi 3766220	3	386	88	93	IIAPOD39
791	IIOGAA68R 5' half of the product is homologues to Bacillus subtilis SAICAR synthetase, 3' half corresponds to the catalytic subunit of AIR carboxylase [Homo sapiens] >pir S14147 S14147 multifunctional purine biosynthesis protein - human Length = 425	gi 28384	1	468	95	97	IIOGAA68

792	HCLBO46R	Actin [Drosophila melanogaster] >pir S14851 S14851 actin - fruit fly (Drosophila melanogaster) >sp Q24228 Q24228 ACTIN. Length = 100	gi 7550	1	303	94	95	HCLBO46
793	IIDRAA14R	ADP,ATP carrier protein T2 - human >sp P12236 ADT3_HUMAN ADP,ATP CARRIER PROTEIN, LIVER ISOFORM T2 (ADP/ATP TRANSLOCASE 3) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3). Length = 298	pir S03894 S03894	2	304	80	92	IIDRAA14
794	HSLCA48R	alpha-1 (III) collagen [Homo sapiens] Length = 1078	gi 930045	2	457	70	75	HSLCA48
795	HIMEAC81R	alpha-subunit of G-protein, type G-alpha-i-1 [Xenopus laevis] >pir S11045 RGXLI1 GTP- binding regulatory protein Gi alpha-1 chain (adenylate cyclase-inhibiting) - African clawed frog >sp P27044 GBI1_XENLA GUANINE NUCLEOTIDE-BINDING PROTEIN G(I), ALPHA-1 SU	gi 64708	99	176	92	92	HIMEAC81
796	IIMQDF20R	beta-1,2-N-acetylglucosaminyltransferase II [Homo sapiens] >pir S66256 S66256 alpha-1,6- mannosyl-glycoprotein beta-1, 2-N- acetylglucosaminyltransferase (EC 2.4.1.143) - human >sp Q10469 GNT2_HUMAN ALPHA- 1,6-MANNOSYL-GLYCOPROTEIN BETA-1,2- N- ACETYLGLUCOSAM	gi 902745	3	287	85	85	IIMQDF20
797	HCHOH06R			12	242			HCHOH06
798	HDQMC20R			3	167			HDQMC20
799	HMKCW11R			2	112			HMKCW11

800	HILDRN9I	C4b-binding protein alpha chain [Homo sapiens] >gil190502 C4b-binding protein alpha chain [Homo sapiens] >pirA33568[NBHUC4 C4b-binding protein alpha chain precursor - human >spP04003]C4BP_HUMAN C4B-BINDING PROTEIN ALPHA CHAIN PRECURSOR (PROLINE-RICH PRO	gil190500	2	331	99	100	HILDRN9I
801	HCHBR17R	cathepsin D [Homo sapiens] >gil29678 precursor polypeptide (AA -20 to 392) [Homo sapiens] >gil181180 preprocathepsin D [Homo sapiens] >pirA25771 KHHUD cathepsin D (EC 3.4.23.5) precursor - human >spP07339 CATD_HUMAN CATHEPSIN D PRECURSOR (EC 3.4.23.5).	gil179948	3	149	92	92	HCHBR17
802	HMKCH15R	Cbf5p homolog [Homo sapiens] Length = 514	gil2737894	131	400	81	81	HMKCH15 <sup>83</sup>
803	HIEGG078R	clathrin light-chain A [Homo sapiens] Length = 218	gil307118	155	502	80	83	HIEGG078
804	HISLFI56R	complement component C3 [Homo sapiens] >pirA94065 C3HU complement C3 precursor - human >spP01024 CO3_HUMAN COMPLEMENT C3 PRECURSOR [CONTAINS: C3A ANAPHYLATOXIN]. >gil181130 complement component C3 [Homo sapiens] {SUB 1-24} Length = 1663	gil179665	48	422	80	82	HISLFI56
805	HSYBY17R	cyclin G [Homo sapiens] >gil236233 cyclin G1 [Homo sapiens] >gil236913 cyclin G1 [Homo sapiens] >pirG02401 G02401 cyclin G1 - human >spP51959 CG2G_HUMAN G2/MITOTIC- SPECIFIC CYCLIN G1. >gnlPID1013694 cyclin G [Homo sapiens] {SUB 1-279} >gil1486361 c	gnlPID1012016	79	300	100	100	HSYBY17

806	IIPJCS07R	cytochrome oxidase I [Apteryx australis] >sp O03515 COX1_APTAU CYTOCHROME C OXIDASE POLYPEPTIDE I (EC 1.9.3.1) (FRAGMENT). Length = 337	gij2198683	113	226	83	92	IIPJCS07
807	IIFADV82R	cytochrome oxidase III [Homo sapiens] >pir A00482 O THU3 cytochrome-c oxidase (EC 1.9.3.1) chain III - human mitochondrion (SGC1) >sp P00414 COX3_HUMAN CYTOCHROME C OXIDASE POLYPEPTIDE III (EC 1.9.3.1). >gij2245564 (AF004341) cytochrome c oxidase subunit I	gij13010	1	105	81	83	IIFADV82
808	IIFKFFH08R	DNA polymerase delta small subunit [Homo sapiens] >pir J38950 J38950 DNA-directed DNA polymerase (EC 2.7.7.7) delta regulatory chain - human >sp P49005 DPD_HUMAN DNA POLYMERASE DELTA SMALL SUBUNIT (EC 2.7.7.7). Length = 469	gij1008458	2	550	97	98	IIFKFFH08
809	HMC DK47R	electron transport flavoprotein [Homo sapiens] >pir A31998 A31998 electron transfer flavoprotein alpha chain precursor - human >sp P13804 ETFA_HUMAN ELECTRON TRANSFER FLAVOPROTEIN ALPHA- SUBUNIT PRECURSOR (ALPHA-ETF). >gn PID e 31769 (AJ224002) electron elongation factor 2 [Homo sapiens] >gij31108 human elongation factor 2 [Homo sapiens] >pir S18294 EFHU2 translation elongation factor eEF-2 - human >sp P13639 EF2_HUMAN ELONGATION FACTOR 2 (EF-2). >gij181969 elongation factor 2 [Homo sapiens] {SUB 501- 858	gij182251	3	320	100	100	HMC DK47
810	IIPIBI27R		gij31106	23	319	98	98	IIPIBI27

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811	IISKJG37R	elongation factor 2 [Homo sapiens] >gj31108 human elongation factor 2 [Homo sapiens] >pir S18294 EFHU2 translation elongation factor eEF-2 - human >sp P13639 EF2_HUMAN ELONGATION FACTOR 2 (EF-2). >gj I81969 elongation factor 2 [Homo sapiens] {SUB 501-858	gj31106	1	372	100	100	100	HSKJG37
812	I12LAZ24R	elongation factor-1-beta [Homo sapiens] >gj31135 elongation factor 1-beta [Homo sapiens] >pir S25432 S25432 translation elongation factor eEF-1 beta chain - human >sp P24534 EF1B_HUMAN ELONGATION FACTOR 1-BETA (EF-1-BETA). {SUB 2-225} Length = 225	gj31100	23	562	100	100	100	I12LAZ24
813	I12LAC50R	enhancer protein [Homo sapiens] >pir S4533 S4533 enhancer protein - human Length = 199	gj440306	38	415	100	100	100	I12LAC50
814	I1PEAE15R	GLANDULAR KALLIKREIN-1. Length = 223	sp Q15946 Q15946	51	236	80	80	80	I1PEAE15
815	I1PIAA24R	GTP-binding protein Ran/TC4 - mouse (fragment) Length = 70	pir JH0654 JH0654	382	507	91	91	91	I1PIAA24
816	I12LAS11R	guanylate cyclase (EC 4.6.1.2) - bovine (fragment) >gj407777 guanylate cyclase [Bos taurus] {SUB 2-498} Length = 498	pir S48119 S48119	28	549	100	100	100	I12LAS11
817	I1HERW66R	HMG1 protein (AA 1 - 215) [Bos taurus] >pir S01947 S01947 nonhistone chromosomal protein HMG-1 - bovine >sp P10103 HMG1_BOVIN HIGH MOBILITY GROUP PROTEIN HMG1 (HMG-1). {SUB 2-215} Length = 215	gj417	3	386	83	83	83	I1HERW66

818	HADMC73R	hMn-superoxiddismutase [unidentified] >gil491292 hMN-superoxiddismutase [unidentified] >gnl PID e93456 Mn- superoxiddismutase [Homo sapiens] {SUB 23- 199} Length = 199	gil491290	2	94	96	100	HADMC73
819	H6EEU22R	hormone receptor hERR1 (AA 1-521) [Homo sapiens] >pir A29345 A29345 steroid hormone receptor ERR1 precursor - human >sp I1474 ERR1_HUMAN STEROID HORMONE RECEPTOR ERR1 (ESTROGEN- RELATED RECEPTOR, ALPHA) (ESTROGEN RECEPTOR-LIKE 1). Length = 521	gil36609	34	225	100	100	H6EEU22
820	IIDTDX66R	HP1Hs-gamma [Homo sapiens] >sp Q13185 HP1G_HUMAN HETEROCHROMATIN PROTEIN 1 HOMOLOG GAMMA (HP1 GAMMA) (MODIFIER 2 PROTEIN). >sp G1773227 G1773227 HP1HS-GAMMA. Length = 173	gil1773227	132	449	82	84	IIDTDX66
821	IILPBB39R	human metallothionein-Ie [Homo sapiens] >pir A22634 SMHU1E metallothionein IE - human >sp P04732 MT1E_HUMAN METALLOTHIONEIN-IE (MT-1E). >bbs 144157 metallothionein MT-1e isoform, metallothionein-Ie [human, monocytes, Peptide Partial, 31 aa] [Homo sapiens]	gil386865	40	246	100	100	IILPBB39
822	HOELG04R	hypothetical 18K protein (rRNA) - goldfish mitochondrion (SGC1) Length = 166	pir JC1348 JC1348	293	415	65	68	HOELG04

823	IIKABU38R	initiation factor 4B [Homo sapiens] >pir S12566 S12566 translation initiation factor elf-4B - human >sp P23588 F4B_HUMAN EUKARYOTIC TRANSLATION INITIATION FACTOR 4B (EIF-4B). Length = 611	gij288100	2	463	92	92	IIKABU38
824	IIBGOI32R	keratin 18 [Homo sapiens] >gij307081 keratin 18 precursor [Homo sapiens] >gij34037 cyokeratin 18 [Homo sapiens] >pir S05481 S05481 keratin 18, type I, cytoskeletal - human >sp P05783 K1CR_HUMAN KERATIN, TYPE I CYTOSKELETAL 18 (CYTOKERATIN 18) (K18) (CK 1)	gij386844	1	240	66	67	IIBGOI32
825	IIATAI03R	KIAA0106 [Homo sapiens] >sp P30041 AOP2_HUMAN ANTIOXIDANT PROTEIN 2 (EC 1.11.1.7) (24 KD PROTEIN) (LIVER 2D PAGE SPOT 40) (RED BLOOD CELLS PAGE SPOT 12). {SUB 2-224} Length = 224	gnl P1D d1004007	3	194	90	93	IIATAI03
826	IICEDE25R	KIAA0106 [Homo sapiens] >sp P30041 AOP2_HUMAN ANTIOXIDANT PROTEIN 2 (EC 1.11.1.7) (24 KD PROTEIN) (LIVER 2D PAGE SPOT 40) (RED BLOOD CELLS PAGE SPOT 12). {SUB 2-224} Length = 224	gnl P1D d1004007	2	283	100	100	IICEDE25
827	HKDBF62R	metallothionein-IG [Homo sapiens] >pir A29236 SMHU1G metallothionein IG - human >sp P13640 MTIG_HUMAN METALLOTHIONEIN-IG (MT-IG). >hbs 14160 metallothionein MT-1g isoform, metallothionein-1g [human, monocytes, Peptide Partial, 31 aa] [Homo sapiens] {SUB	gij188713	170	322	95	95	HKDBF62

828	IINTSX94R	mitochondrial matrix protein [Homo sapiens] >pir A32800 A32800 chaperonin GroEL precursor - human >sp P10809 P60_HUMAN MITOCHONDRIAL MATRIX PROTEIN P1 PRECURSOR (P60 LYMPHOCYTE PROTEIN) (60 KD CHAPERONIN) (HEAT SHOCK PROTEIN 60) (HSP-60) (PROTEIN CPN60) (	gij 190 127	3	431	97	100	IINTSX94
829	IIRGBR08R	mitochondrial matrix protein [Homo sapiens] >pir A32800 A32800 chaperonin GroEL precursor - human >sp P10809 P60_HUMAN MITOCHONDRIAL MATRIX PROTEIN P1 PRECURSOR (P60 LYMPHOCYTE PROTEIN) (60 KD CHAPERONIN) (HEAT SHOCK PROTEIN 60) (HSP-60) (PROTEIN CPN60) (	gij 190 127	1	504	94	94	IIRGBR08
830	I12LAO77R	MSS1 protein [Homo sapiens] >pir S24353 S24353 proteasome 26S subunit MSS1 - human >sp G385267 G385267 26 S PROTEASE SUBUNIT 7, MSS1=MODULATOR OF HIV TAT- MEDIATED TRANSACTIVATION. {SUB 2- 23} Length = 433	gn PID d1002345	137	580	91	91	H2LAO77 88
831	IINTRW15R	NAD+ ADP-ribosyltransferase [Homo sapiens] >pir A29725 A29725 NAD+ ADP- ribosyltransferase (EC 2.4.2.30), nuclear - human >sp P09874 PPOL_HUMAN POLY [ADP- RIBOSE] POLYMERASE (EC 2.4.2.30) (PARP) (ADPRT) (NAD(+)) ADP- RIBOSYLTRANSFERASE (POLY[ADP- RIBOSE] SYN	gij 178 190	163	297	90	96	IINTRW15



832	HORBH08R	NADH dehydrogenase (ubiquinone) (EC 1.6.5.3) 51K chain precursor - human (fragment) >sp P49821 NUBM_HUMAN NADH-UBIQUINONE OXIDOREDUCTASE 51 KD SUBUNIT PRECURSOR (EC 1.6.5.3) (EC 1.6.99.3) (COMPLEX I-51KD) (CI-51KD) (FRAGMENT). >bbs I42159 NADH:ubiquinone nonstructural protein P125-2 [pestivirus type 1] >sp O57114 O57114 NONSTRUCTURAL PROTEIN P125-2 (FRAGMENT). Length = 239	186	428	83	87	HORBH08
833	HULBL38R	p60 [Homo sapiens] >sp Q13446 Q13446 EB13-ASSOCIATED PROTEIN p60. >gi 3283216 (AF060494) ubiquitin binding protein p62 [Homo sapiens] {SUB 1-72} Length = 440	3	437	95	97	HULBL38
834	HINTBK49R	Phalaenopsis sp. 'hybrid SM9108' actin [Phalaenopsis sp. 'hybrid SM9108'] >sp Q40981 Q40981 ACTIN (FRAGMENT). Length = 208	3	368	100	100	HINTBK49
835	HBAFS48R	PIPPin protein [Rattus norvegicus] >pir JC4588 JC4588 RNA-binding protein PIPPIn - rat >sp Q63430 Q63430 PIPPIN PROTEIN. Length = 154	2	316	91	92	HBAFS48
836	HHGAL60R	prepro-alpha-1 collagen [Homo sapiens] >sp Q15201 Q15201 PREPRO-ALPHA-1 COLLAGEN PRECURSOR (FRAGMENT). Length = 181	2	319	66	81	HHGAL60
837	HOHBU75R	progesterone-induced protein [Oryctolagus cuniculus] >pir A26998 A26998 progesterone-induced protein, endometrial - rabbit Length = 370	104	373	71	72	HOHBU75
838	HHIEF279R		293	484	73	77	HHIEF279

839	IISLBA61R	proteasome subunit C5 [Homo sapiens] >gnl PID e1334433 (AL031259) C5 (proteasome subunit HC5) [Homo sapiens] >pir S15973 SNHUC5 multicatalytic endopeptidase complex (EC 3.4.99.46) chain C5 - human >sp P20618 PRC5_HUMAN PROTEASOME COMPONENT C5 (EC 3.4.99.4 put. ORF [Homo sapiens] >pir 38022 38022 hypothetical protein - human >sp Q29976 Q29976 MAHLAVU HEPATOCELLULAR CARCINOMA HHC(M) DNA. Length = 196	gnl PID d1001116	45	224	96	96	IISLBA61
840	HIPEAE18R		gi 288145	55	234	57	67	HIPEAE18
841	HNGFO65R	ren(exclusion;96) [Bacteriophage lambda] >pir F43010 ZRBPL ren protein - phage lambda Length = 96	gi 215152	3	203	48	59	HNGFO65
842	IIKAKR61R	ribosomal protein small subunit [Homo sapiens] Length = 264	gi 306353	3	458	91	91	IIKAKR61
843	I12LAP11R	ribosomal phosphoprotein P1 (AA 1-114) [Rattus rattus] >pir S08022 R5RT12 acidic ribosomal protein P1 - rat Length = 114	gi 57710	169	549	100	100	I12LAP11
844	H2CBD90R	ribosomal protein L10 [Homo sapiens] >sp D102677 D1026771 RIBOSOMAL PROTEIN L15 (FRAGMENT). {SUB 16-57} Length = 205	gi 414587	199	501	95	95	H2CBD90
845	H2LAD40R	ribosomal protein L15 gene product [Rattus norvegicus] >pir J02369 J02369 ribosomal protein L15 - rat Length = 204	gi 515865	156	524	100	100	H2LAD40

90

846	HCYBK51R	ribosomal protein L37 [Homo sapiens] >bbs 172744 ribosomal protein L37 (C2-C2 zinc-finger-like) [human, HeLa cells, Peptide, 97 aa] [Homo sapiens] >gnl PID d1005426 ribosomal protein L37 [Homo sapiens] >gil57121 ribosomal protein L37 [Rattus norvegicus] >	gi 292441	2	412	97	98	HCYBK51
847	I12MBC73R	ribosomal protein L37a [Homo sapiens] >gil36134 ribosomal protein L37a [Homo sapiens] >gil57123 ribosomal protein L37a (AA 1-92) [Rattus rattus] >gil312414 ribosomal protein L37a [Mus musculus] >pir S05014 R5RT37 ribosomal protein L37a - rat >pir S42109	gi 292439	2	385	100	100	I12MBC73
848	I12MBU27R	ribosomal protein L37a [Homo sapiens] >gil36134 ribosomal protein L37a [Homo sapiens] >gil57123 ribosomal protein L37a (AA 1-92) [Rattus rattus] >gil312414 ribosomal protein L37a [Mus musculus] >pir S05014 R5RT37 ribosomal protein L37a - rat >pir S42109	gi 292439	2	286	100	100	I12MBU27 <sup>91</sup>
849	I1DSA1153R	ribosomal protein L37a [Homo sapiens] >gil36134 ribosomal protein L37a [Homo sapiens] >gil57123 ribosomal protein L37a (AA 1-92) [Rattus rattus] >gil312414 ribosomal protein L37a [Mus musculus] >pir S05014 R5RT37 ribosomal protein L37a - rat >pir S42109	gi 292439	3	341	97	97	I1DSA1153
850	HAIDF69R	ribosomal protein L7a [Fugu rubripes] Length = 266	gnl PID e1248480	179	250	93	100	HAIDF69

851	HDBAA15R	ribosomal protein L8 [Homo sapiens] >gi 57704 ribosomal protein L8 [Rattus rattus] >gi 1527178 ribosomal protein L8 [Mus musculus] >pir JU0177 R5RTL8 ribosomal protein L8, cytosolic - rat >pir JN0923 JN0923 ribosomal protein L8, cytosolic - human >gi 3851	gi 433899	220	429	85	88	HDBAA15
852	HIDTHW54R	ribosomal protein S12 (AA 1 - 132) [Mus musculus] >pir S13074 R3RT12 ribosomal protein S12 - rat >pir S05492 R3MS12 ribosomal protein S12 - mouse >gi 206741 ribosomal protein S12 [Rattus norvegicus] (SUB 1-130) Length = 132	gi 54006	3	332	89	89	HIDTHW54
853	HTWJC11R	ribosomal protein S13 [Homo sapiens] >gi 488417 ribosomal protein S13 [Homo sapiens] >gnl PID d1014222 ribosomal protein S13 [Homo sapiens] >gi 57730 ribosomal protein S13 [Rattus rattus] >pir S34109 S34109 ribosomal protein S13, cytosolic - human >pir A3	gi 307391	1	276	97	97	HTWJC11
854	HKAEC40R	ribosomal protein S24 [Homo sapiens] >gi 517222 ribosomal protein S24 [Homo sapiens] >gi 49652 ribosomal protein S19 (AA 1 - 133) [Mesocricetus auratus] >gi 57858 ribosomal protein S24 [Rattus norvegicus] >gi 57722 ribosomal protein S24 (AA 1-133) [Rattus	gi 337506	93	407	83	84	HKAEC40
855	HICFNM70R	ribosomal protein S4X isoform [Homo sapiens] >gi 2791861 (AF041428) ribosomal protein s4 X isoform [Homo sapiens] >gi 200864 ribosomal protein S4 [Mus musculus] >gi 57135 ribosomal protein S4 (AA 1 - 263) [Rattus rattus] >gnl PID d1002335 ribosomal protei	gi 337510	3	278	96	97	HICFNM70

856	HKBAB93R	ribosomal protein S8 [Homo sapiens] >gi 57139 ribosomal protein S8 (AA 1-208) [Rattus norvegicus] >gi 313298 ribosomal protein S8 [Mus musculus] >pir S01609 R3RT8 ribosomal protein S8 - rat >pir S42110 S42110 ribosomal protein S8 - mouse >pir S25022 S2502	gi 36150	2	391	87	90	IHKBAB93
857	IILHEJ79R	RNA polymerase II subunit hRPB17 [Homo sapiens] >pir S55370 S55370 RNA polymerase II chain hRPB17 - human Length = 150	gi 854177	129	446	83	86	HLHEJ79
858	IIBGOI24R	S19 ribosomal protein [Homo sapiens] >pir S2692 S2692 ribosomal protein S19, cytosolic - human Length = 145	gi 337733	2	421	99	100	HIBGOI24
859	HINDADI6R	secretory protein [Homo sapiens] >gi 940946 intestinal trefoil factor [Homo sapiens] >pir A48284 A48284 intestinal trefoil factor 3 precursor - human >sp Q07654 ITF_HUMAN INTESTINAL TREFOIL FACTOR PRECURSOR (HPI.B). Length = 80	gi 402483	3	380	71	78	HINDADI6
860	HIMAEA94R	serine/threonine protein kinase [Homo sapiens] >gnl PID e1154172 (AJ000512) serine/threonine protein kinase [Homo sapiens] Length = 431	gnl PID e293330	3	422	95	95	HIMAEA94
861	IIMWEA08R	signal recognition particle subunit 9 [Homo sapiens] >pir A57292 A57292 signal recognition particle protein SRP9 - human Length = 86	gi 897851	119	394	90	93	IIMWEA08
862	IIBSO48R	similar to Drosophila photoreceptor cell-specific protein, calphotin. [Homo sapiens] >sp Q14676 Q14676 KIAA0170 PROTEIN. Length = 2089	gnl PID d1012153	1	528	95	95	IIBSO48

863	HIRACC09R	smooth muscle protein [Homo sapiens] >pir JS0774 JS0774 smooth muscle protein SM22 - human Length = 201	gi 177175	1	117	100	100	HIRACC09
864	HOEEC67R	smooth muscle protein SM22 homolog - mouse Length = 201	pir A60598 A60598	105	230	100	100	HOEEC67
865	HPFEA40R	t-complex polypeptide 1 (AA 1-556) [Homo sapiens] Length = 556	gi 36796	3	497	98	99	HPFEA40
866	HODAV31R	tissue inhibitor of metalloproteinases [Homo sapiens] Length = 166	gnl P D d1002390	1	273	64	67	HODAV31
867	HHECI89R	transaldolase [Homo sapiens] >gi 2612879 (AF010400) transaldolase-related protein [Homo sapiens] >sp O00751 O00751 TRANSALDOLASE (EC 2.2.1.2). >gi 1480787 transaldolase [Homo sapiens] {SUB 302-337} Length = 337	gi 2073541	3	371	99	99	HHECI89
868	HSDFV03R	translocase [Bos taurus] >pir B43646 B43646 ADP,ATP carrier protein T2 - bovine >sp P32007 ADT3_BOVIN ADP,ATP CARRIER PROTEIN, ISOFORM T2 (ADP/ATP TRANSLOCASE 3) (ADENINE NUCLEOTIDE TRANSLOCATOR 3) (ANT 3). Length = 298	gi 529417	20	412	92	96	HSDFV03
869	HTXPN01R	triose-phosphate isomerase [Pan troglodytes] >gi 37247 triosephosphate isomerase [Homo sapiens] >gi 1200507 triosephosphate isomerase [Homo sapiens] >gi 339841 triosephosphate isomerase (EC 5.3.1.1) [Homo sapiens] >pir S29743 SHUT triose-phosphate isomer	gi 176960	3	281	98	98	HTXPN01
870	HHPSA49R	tuberin [Homo sapiens] Length = 1784	gi 450352	2	451	69	69	HHPSA49
871	H2LAT88R	type II mesothelial keratin K7 [Homo sapiens] >sp Q92676 Q92676 MESOTHELIAL KERATIN K7 (TYPE II) (FRAGMENT). Length = 489	gi 386851	1	567	91	91	H2LAT88

94

95

872	H6EAD58R	49	174	I16EAD58
873	HACBH95R	2	364	HACBH95
874	I1ACBY16R	1	84	I1ACBY16
875	HAGCI33R	2	238	HAGCI33
876	HAHAD34R	61	123	HAHAD34
877	I1AJAN69R	67	294	I1AJAN69
878	I1ALSG52R	41	268	I1ALSG52
879	I1APPR17R	180	311	I1APPR17
880	HAQCG78R	3	110	HAQCG78
881	I1AUBY86R	23	118	I1AUBY86
882	HAVAA34R	1	117	HAVAA34
883	HBAFK20R	2	355	HBAFK20
884	HGBBE20R	31	315	HGBBE20
885	HBJBR66R	2	52	HBJBR66
886	HBJMU59R	2	208	HBJMU59
887	I1BKDK63R	147	647	I1BKDK63
888	I1BMVT43R	2	70	I1BMVT43
889	HCDAM59R	21	125	HCDAM59
890	HCFLN25R	3	224	HCFLN25
891	HCQAW59R	1	129	HCQAW59
892	I1DPMA46R	223	420	I1DPMA46
893	I1DTAQ26R	177	296	I1DTAQ26
894	HDTAT40R	1	213	HDTAT40
895	I1DTLD39R	323	496	I1DTLD39
896	HE2PO63R	39	278	HE2PO63
897	I1ELCV09R	1	72	I1ELCV09
898	HELHK95R	3	383	HELHK95
899	HEMGL70R	2	172	HEMGL70
900	I1ETIB72R	2	100	I1ETIB72
901	I1FFAS19R	2	256	I1FFAS19
902	I1FIYH65R	68	259	I1FIYH65

HF'XAF89	143	361	HIFXAF89	903
HHEPR03	89	307	HHEPR03R	904
HHGAQ80	2	202	HHGAQ80R	905
HHSEF82	170	304	HHSEF82R	906
HKBAAG3	239	469	HKBAAG3R	907
HKIXO47	2	94	HKIXO47R	908
HL.DNF70	3	176	HL.DNF70R	909
HLQFO33	62	268	HLQFO33R	910
HL.WBC80	46	543	HL.WBC80R	911
HL.YAV50	3	224	HL.YAV50R	912
HMEKY67	3	302	HMEKY67R	913
HMTBN58	3	377	HMTBN58R	914
HNGAZ91	22	276	HNGAZ91R	915
HNTAC06	2	133	HNTAC06R	916
HOGAF41	1	228	HOGAF41R	917
HOUDQ92	75	323	HOUDQ92R	918
HPEAD91	60	233	HPEAD91R	919
HPIAF72	128	310	HPIAF72R	920
HPIAU01	122	334	HPIAU01R	921
HPIAU73	99	275	HPIAU73R	922
HPIAW19	102	350	HPIAW19R	923
HPIAZ19	238	348	HPIAZ19R	924
HPIBA31	245	367	HPIBA31R	925
HPIBS06	84	182	HPIBS06R	926
HPICB65	2	430	HPICB65R	927
HPJBF22	220	330	HPJBF22R	928
HPJBZ81	214	384	HPJBZ81R	929
HRACF81	1	189	HRACF81R	930
HRACT28	110	319	HRACT28R	931
HSBAP03	123	263	HSBAP03R	932
HSDJK57	234	458	HSDJK57R	933



934	IISIFY54R	1	321	IISIFY54
935	HSLDJ92R	24	275	HSLDJ92
936	HSLJI47R	185	379	HSLJI47
937	HTSGE53R	36	209	HTSGE53
938	HUFAT72R	276	410	HUFAT72
939	HULAI70R	176	337	HULAI70
940	HTGFW12R	3	233	HTGFW12

gnl|PID|d1008092

yeast mismatch repair gene PMS1 homologue  
[Homo sapiens] >gnl|PID|d1008050 homologue  
of yeast PMS1 [Homo sapiens]  
>sp|Q16530|Q16530 PMS3 MRNA (YEAST  
MISMATCH REPAIR GENE PMS1  
HOMOLOGUE), PARTIAL CDS (C-  
TERMINAL REGION) (FRAGMENT). Length =  
256

The first column of Table 1 shows the "SEQ ID NO:" for each of the 940 prostate cancer antigen polynucleotide sequences of the invention.

The second column in Table 1, provides a unique "Sequence/Contig ID" identification for each prostate and/or prostate cancer associated sequence. The third column in Table 1, "Gene Name," provides a putative identification of the gene based on the sequence similarity of its translation product to an amino acid sequence found in a publicly accessible gene database, such as GenBank (NCBI). The great majority of the cDNA sequences reported in Table 1 are unrelated to any sequences previously described in the literature. The fourth column, in Table 1, "Overlap," provides the database accession no. for the database sequence having similarity. The fifth and sixth columns in Table 1 provide the location (nucleotide position nos. within the contig), "Start" and "End", in the polynucleotide sequence "SEQ ID NO:X" that delineate the preferred ORF shown in the sequence listing as SEQ ID NO:Y. In one embodiment, the invention provides a protein comprising, or alternatively consisting of, a polypeptide encoded by the portion of SEQ ID NO:X delineated by the nucleotide position nos. "Start" and "End". Also provided are polynucleotides encoding such proteins and the complementary strand thereto. The seventh and eighth columns provide the "% Identity" (percent identity) and "% Similarity" (percent similarity) observed between the aligned sequence segments of the translation product of SEQ ID NO:X and the database sequence.

The ninth column of Table 1 provides a unique "Clone ID" for a clone related to each contig sequence. This clone ID references the cDNA clone which contains at least the 5' most sequence of the assembled contig and at least a portion of SEQ ID NO:X was determined by directly sequencing the referenced clone. The reference clone may have more sequence than described in the sequence listing or the clone may have less. In the vast majority of cases, however, the clone is believed to encode a full-length polypeptide. In the case where a clone is not full-length, a full-length cDNA can be obtained by methods described elsewhere herein.

Table 3 indicates public ESTs, of which at least one, two, three, four, five, ten, or more of any one or more of these public ESTs are optionally excluded from the invention.

SEQ ID NO:X (where X may be any of the polynucleotide sequences disclosed in the sequence listing as SEQ ID NO:1 through SEQ ID NO:940) and the translated SEQ ID NO:Y (where Y may be any of the polypeptide sequences disclosed in the sequence listing as SEQ ID NO:941 through SEQ ID NO:1880) are sufficiently accurate and otherwise suitable for a

variety of uses well known in the art and described further below. For instance, SEQ ID NO:X has uses including, but not limited to, in designing nucleic acid hybridization probes that will detect nucleic acid sequences contained in SEQ ID NO:X or the related cDNA clone contained in a library deposited with the ATCC. These probes will also hybridize to nucleic acid molecules in biological samples, thereby enabling immediate applications in chromosome mapping, linkage analysis, tissue identification and/or typing, and a variety of forensic and diagnostic methods of the invention. Similarly, polypeptides identified from SEQ ID NO:Y have uses that include, but are not limited to, generating antibodies which bind specifically to the prostate cancer antigen polypeptides, or fragments thereof, and/or to the prostate cancer antigen polypeptides encoded by the cDNA clones identified in Table 1.

Nevertheless, DNA sequences generated by sequencing reactions can contain sequencing errors. The errors exist as misidentified nucleotides, or as insertions or deletions of nucleotides in the generated DNA sequence. The erroneously inserted or deleted nucleotides cause frame shifts in the reading frames of the predicted amino acid sequence. In these cases, the predicted amino acid sequence diverges from the actual amino acid sequence, even though the generated DNA sequence may be greater than 99.9% identical to the actual DNA sequence (for example, one base insertion or deletion in an open reading frame of over 1000 bases).

Accordingly, for those applications requiring precision in the nucleotide sequence or the amino acid sequence, the present invention provides not only the generated nucleotide sequence identified as SEQ ID NO:X, the predicted translated amino acid sequence identified as SEQ ID NO:Y, but also a sample of plasmid DNA containing the related cDNA clone (deposited with the ATCC, as set forth in Table 1). The nucleotide sequence of each deposited clone can readily be determined by sequencing the deposited clone in accordance with known methods. Further, techniques known in the art can be used to verify the nucleotide sequences of SEQ ID NO:X.

The predicted amino acid sequence can then be verified from such deposits. Moreover, the amino acid sequence of the protein encoded by a particular clone can also be directly determined by peptide sequencing or by expressing the protein in a suitable host cell containing the deposited human cDNA, collecting the protein, and determining its sequence.

The present invention also relates to vectors or plasmids which include such DNA sequences, as well as the use of the DNA sequences. The material deposited with the ATCC on:

5 **Table 2**

ATCC Deposits	Deposit Date	ATCC Designation Number
LP01, LP02, LP03, LP04, LP05, LP06, LP07, LP08, LP09, LP10, LP11, LP12	May-20-97	209059, 209060, 209061, 209062, 209063, 209064, 209065, 209066, 209067, 209068, 209069
LP13	Jan-12-98	209579
LP14	Jan-12-98	209578
LP15	Jul-16-98	203067
LP16	Jul-16-98	203068
LP17	Feb-1-99	203609
LP20	Feb-1-99	203610
LP21	Nov-17-98	203485
LP22	Jun-18-99	PTA-252
LP23	Jun-18-99	PTA-253
	Dec-22-99	PTA-1081

each is a mixture of cDNA clones derived from a variety of human tissue and cloned in either a plasmid vector or a phage vector, as shown in Table 5. These deposits are referred to as "the deposits" herein. The tissues from which the clones were derived are listed in Table 5, and the vector in which the cDNA is contained is also indicated in Table 5. The deposited material includes the cDNA clones which were partially sequenced and are related to the SEQ ID NO:X described in Table 1 (column 9). Thus, a clone which is isolatable from the ATCC Deposits by use of a sequence listed as SEQ ID NO:X may include the entire coding region of a human gene or in other cases such clone may include a substantial portion of the coding region of a human gene. Although the sequence listing lists only a portion of the DNA sequence in a clone included in the ATCC Deposits, it is well within the ability of one

ATCC Deposits by use of a sequence (or portion thereof) listed in Table I by procedures hereinafter further described, and others apparent to those skilled in the art.

Also provided in Table 5 is the name of the vector which contains the cDNA clone. Each vector is routinely used in the art. The following additional information is provided for  
5 convenience.

Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., *Nucleic Acids Res.* 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., *Nucleic Acids Res.* 17:9494 (1989)) and pBK (Alting-  
10 Mees, M. A. et al., *Strategies* 5:58-61 (1992)) are commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Phagemid pBS may be excised from the Lambda Zap and Uni-Zap XR vectors, and phagemid pBK may be excised from the Zap Express vector. Both phagemids may be transformed into *E. coli* strain  
15 XL-1 Blue, also available from Stratagene.

Vectors pSport1, pCMVSport 1.0, pCMVSport 2.0 and pCMVSport 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, also available from Life Technologies. See, for instance, Gruber, C. E., et al., *Focus*  
20 15:59 (1993). Vector lafmid BA (Bento Soares, Columbia University, New York, NY) contains an ampicillin resistance gene and can be transformed into *E. coli* strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into *E. coli* strain DH10B, available from Life Technologies. See, for instance, Clark, J. M., *Nuc. Acids Res.*  
25 16:9677-9686 (1988) and Mead, D. et al., *Bio/Technology* 9: (1991).

The present invention also relates to the genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or the cDNA contained in a deposited cDNA clone. The corresponding gene can be isolated in accordance with known methods using the sequence information disclosed herein. Such methods include, but are not limited to, preparing probes or primers from the  
30 disclosed sequence and identifying or amplifying the corresponding gene from appropriate sources of genomic material.

Also provided in the present invention are allelic variants, orthologs, and/or species homologs. Procedures known in the art can be used to obtain full-length genes, allelic variants, splice variants, full-length coding portions, orthologs, and/or species homologs of genes corresponding to SEQ ID NO:X, SEQ ID NO:Y, and/or the cDNA contained in the related cDNA clone in the deposit, using information from the sequences disclosed herein or the clones deposited with the ATCC. For example, allelic variants and/or species homologs may be isolated and identified by making suitable probes or primers from the sequences provided herein and screening a suitable nucleic acid source for allelic variants and/or the desired homologue.

The present invention provides a polynucleotide comprising, or alternatively consisting of, the nucleic acid sequence of SEQ ID NO:X, and/or the related cDNA clone (See, e.g., columns 1 and 9 of Table 1). The present invention also provides a polypeptide comprising, or alternatively, consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in a deposited library. Polynucleotides encoding a polypeptide comprising, or alternatively consisting of, the polypeptide sequence of SEQ ID NO:Y, a polypeptide encoded by SEQ ID NO:X, and/or a polypeptide encoded by the the dDNA in the related cDNA clone contained in a deposited library, are also encompassed by the invention. The present invention further encompasses a polynucleotide comprising, or alternatively consisting of, the complement of the nucleic acid sequence of SEQ ID NO:X, and/or the complement of the coding strand of the related cDNA clone contained in a deposited library.

Many polynucleotide sequences, such as EST sequences, are publicly available and accessible through sequence databases and may have been publicly available prior to conception of the present invention. Preferably, such related polynucleotides are specifically excluded from the scope of the present invention. To list every related sequence would unduly burden the disclosure of this application. Accordingly, for each "Contig Id" listed in the first column of Table 3, preferably excluded are one or more polynucleotides comprising a nucleotide sequence described in the second column of Table 3 by the general formula of a-b, each of which are uniquely defined for the SEQ ID NO:X corresponding to that Contig Id in Table 1. Additionally, specific embodiments are directed to polynucleotide sequences excluding at least one, two, three, four, five, ten, or more of the specific polynucleotide sequences referenced by the Genbank Accession No. for each Contig Id which may be

included in column 3 of Table 3. In no way is this listing meant to encompass all of the sequences which may be excluded by the general formula. it is just a representative example.

Table 3.

Sequence/ Contig ID	General formula	Genbank Accession No.
574130	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 703 of SEQ ID NO:1, b is an integer of 15 to 717, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:1, and where b is greater than or equal to a + 14.	
637706	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1611 of SEQ ID NO:2, b is an integer of 15 to 1625, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:2, and where b is greater than or equal to a + 14.	
638162	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2421 of SEQ ID NO:3, b is an integer of 15 to 2435, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:3, and where b is greater than or equal to a + 14.	R78923, R79022, H78714, H78726, H79487, H79500, H86682, H99479, N22197, N28292, N48317, N49043, N79526, W16679, AA017524, AA017582, AA215755, AA463914
684310	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 972 of SEQ ID NO:4, b is an integer of 15 to 986, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:4, and where b is greater than or equal to a + 14.	R00703, R79938, R80028, N75501, N99910, W25289
731016	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 356 of SEQ ID NO:5, b is an integer of 15 to 370, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:5, and where b is greater than or equal to a + 14.	
827771	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 497 of SEQ ID NO:6, b is an integer of 15 to 511, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:6, and where b is greater than or equal to a + 14.	
828193	Preferably excluded from the present invention are one or more polynucleotides comprising a	



	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 704 of SEQ ID NO:7, b is an integer of 15 to 718, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:7, and where b is greater than or equal to a + 14.	
828194	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 431 of SEQ ID NO:8, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:8, and where b is greater than or equal to a + 14.	
828199	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 744 of SEQ ID NO:9, b is an integer of 15 to 758, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:9, and where b is greater than or equal to a + 14.	
828221	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3050 of SEQ ID NO:10, b is an integer of 15 to 3064, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:10, and where b is greater than or equal to a + 14.	T47410, T54389, T54694, T47411, T54281, T54610, T58617, T58667, T78082, T78249, T80561, R28515, R28663, R38862, R54617, R54880, H08112, H08113, H16261, H16460, H22343, H22344, H29551, H29643, H41933, H41980, R83220, R83221, R85675, R89016, R89017, R99602, R99707, H58947, H58994, H59578, H59579, H62419, H91312, H91409, N54589, N66610, N73945, N76670, W03705, W04654, W31578, W38370, W39449, W93512, W93513, AA024819, AA024925, AA033860, AA076628, AA159000, AA193455, AA257006, AA225275, AA483288, AA507139, AA522771, AA527181, AA534997, AA541666, AA614359, AA614596, AA622977, AA622978, AA569985, AA576092, AA659398, AA826776, AA836985, AA864814, AA904006, AA911931, AA916611, AA932076, AA991541, C06189
828235	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1482 of SEQ ID NO:11, b is an integer of 15 to 1496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:11, and where b is greater than or equal to a + 14.	AA045157, AA252563, AA573229, AA935280
828236	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:12, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:12, and where b is greater than or equal to a + 14.	
828237	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3534 of SEQ ID NO:13, b is an integer of 15 to 3548, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:13, and where b is greater than or equal to a + 14.	
828239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 452 of SEQ ID NO:14, b is an integer of 15 to 466, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:14, and where b is greater than or equal to a + 14.	
828242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 850 of SEQ ID NO:15, b is an integer of 15 to 864, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:15, and where b is greater than or equal to a + 14.	
828247	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2791 of SEQ ID NO:16, b is an integer of 15 to 2805, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:16, and where b is greater than or equal to a + 14.	
828248	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 696 of SEQ ID NO:17, b is an integer of 15 to 710, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:17, and where b is greater than or equal to a + 14.	T66275, R11733, H10020, H10293, AA054067, AA127524, AA192628
828250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 978 of SEQ ID NO:18, b is an integer of 15 to 992, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:18, and where b is greater than or equal to a + 14.	T52330, T52406, H58954, H59892, H80117, H95961, AA035013, AA233062, AA811863, AA812014, AA827886

828256	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1781 of SEQ ID NO:19, b is an integer of 15 to 1795, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:19, and where b is greater than or equal to a + 14.	R19470, R43810, R43810, R68471, R84396, H48527, H72808, H74042, H77919, N59326, W37177, W63751, AA054952, AA055414, AA075756, AA084216, AA167088, AA171933, AA283637, AA504517, AA526903, AA548976, AA720935, AA743227, AA876493, AA922502, AA935236, AA977747, AA985556, AA995834, A1085874, A1089849, N83890, AA643000
828267	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:20, b is an integer of 15 to 709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:20, and where b is greater than or equal to a + 14.	R64277, R78171, R81344, R82497, R82551, H30248, N21678, N35076, N43816, N49970, N72024, N72025, W32428, W45005, W47341, W47466, AA023021, AA022495, AA160240, AA161105, AA160827, AA262229, AA460961, AA461270, AA503727, AA516264, AA587486, AA618498, AA577174, AA769656, AA806381, AA804907, AA814296, AA826741, AA872272, AA873216, AA877503, AA887257, AA888574, AA903406, AA946650, A1005204, F18545, A1096504, A1096416, C01329
828269	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 635 of SEQ ID NO:21, b is an integer of 15 to 649, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:21, and where b is greater than or equal to a + 14.	
828272	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1593 of SEQ ID NO:22, b is an integer of 15 to 1607, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:22, and where b is greater than or equal to a + 14.	R19809, H18934, H19375, H26539, AA055911, AA494436, AA587324, AA714132, C17882, C18668
828273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 564 of SEQ ID NO:23, b is an integer of 15 to 578, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:23, and where b is greater than or equal to a + 14.	H19271
828290	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2742 of SEQ ID NO:24, b is an integer of 15 to 2756, where both a and b correspond to the	T59898, T59989, T94867, T94912, T65240, T65292, T66052, T77599, R09165, R09268, R10580, R10581, T80506, T80507, R16318, R27636, R30800, R35595, R38849, R39241, R41395, R59117, R76584, R76585.

	positions of nucleotide residues shown in SEQ ID NO:24, and where b is greater than or equal to a + 14.	H09652, H09692, H11510, H11870, R83218, R91788, R91789, R96324, R96325, H57286, H72668, N74017, W02255, AA148639, AA148693, AA236061, AA236908, AA252747, AA259022, AA262883, AA278784, AA282771, AA284927, AA417594, AA456869, AA457026, AA482034, AA483364, AA483699, AA742268, AA831255
828326	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2666 of SEQ ID NO:25, b is an integer of 15 to 2680, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:25, and where b is greater than or equal to a + 14.	T39632, T51535, T51684, T53316, T53317, T78655, R39299, R50091, R50092, R60242, R60477, H15498, H16190, H16348, H23875, H23876, H39694, H46597, H66845, H66889, H81508, H83033, N71968, N99700, W00835, W42577, W60798, W60929, AA040868, AA043137, AA100392, AA133460, AA133461, AA151301, AA190783, AA190331, AA232148, AA244332, AA244333, AA417836, AA468588, AA552068, AA622100, AA570065, AA568384, AA661530, AA689348, AA748424, AA767109, AA769292, AA809791, AA915876, AA931522, AA983494, AI081278, N85117, W22522
828397	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1845 of SEQ ID NO:26, b is an integer of 15 to 1859, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:26, and where b is greater than or equal to a + 14.	
828405	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 620 of SEQ ID NO:27, b is an integer of 15 to 634, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:27, and where b is greater than or equal to a + 14.	N27583
828461	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1618 of SEQ ID NO:28, b is an integer of 15 to 1632, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:28, and where b is greater than or equal to a + 14.	T89996, H96643, AA076642, AA079413, AA120823, AA120824, AA133102, AA128879, AA158349, AA158350, AA838312, C00042, AA642274
828482	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R12256, T79977, T81576, T83389, T97268, T97379, R16708, R39343, R69161, R69275, H15410, H15466, H29577, H29661, H50315, N34544,

	2525 of SEQ ID NO:29, b is an integer of 15 to 2539, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:29, and where b is greater than or equal to a + 14.	N47100, N62861, N67285, W24823, AA232725, AA236518, AA657840, AA736793, W26725
828488	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 480 of SEQ ID NO:30, b is an integer of 15 to 494, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:30, and where b is greater than or equal to a + 14.	
828491	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1249 of SEQ ID NO:31, b is an integer of 15 to 1263, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:31, and where b is greater than or equal to a + 14.	
828492	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 323 of SEQ ID NO:32, b is an integer of 15 to 337, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:32, and where b is greater than or equal to a + 14.	
828494	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1728 of SEQ ID NO:33, b is an integer of 15 to 1742, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:33, and where b is greater than or equal to a + 14.	T77590, R19349, H06686, N42827, N42891, N73270, W38326, AA180136, AA194183, AA235257, AA424380, AA902702, AA939089, AA977206, AA988001, AA996359
828496	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1152 of SEQ ID NO:34, b is an integer of 15 to 1166, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:34, and where b is greater than or equal to a + 14.	H16641, H81084, AA972362
828498	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1035 of SEQ ID NO:35, b is an integer of 15 to 1049, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:35, and where b is greater than or equal to a + 14.	T39930, T98680, R89124, R89756, R91725, R91820, R92013, R92158, R94233, R94329, H59495, H61480, H62771, H62831, H67085, H67621, H71835, H71836, H79855, H79856, N31924, N42760, N55543, N72715, N76929, N79841, W46350, W46166, H97319, AA730300, AA746151, AA887571, AA918492.

		AA989417, A1001025, D79228, W38455, C15769
828504	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 475 of SEQ ID NO:36, b is an integer of 15 to 489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:36, and where b is greater than or equal to a + 14.	
828507	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 584 of SEQ ID NO:37, b is an integer of 15 to 598, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:37, and where b is greater than or equal to a + 14.	
828512	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 748 of SEQ ID NO:38, b is an integer of 15 to 762, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:38, and where b is greater than or equal to a + 14.	N27463
828516	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1944 of SEQ ID NO:39, b is an integer of 15 to 1958, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:39, and where b is greater than or equal to a + 14.	T56794, T56795, T84141, R02653, R20890, R24025, R33319, R33320, R34774, R67912, R69738, R77753, R77838, R81629, H15449, H15508, H27402, H58932, H58979, H99151, N20262, N24400, N25962, N29166, N34977, N35438, N50797, N55154, W02966, W92783, W92882, AA007585, AA036747, AA036997, AA074474, AA102125, AA100655, AA112751, AA113219, AA113805, AA188790, AA541250, AA541763, AA558310, AA559035, AA581570, AA587474, AA569332, AA687827, AA715063, AA918342, AA936443, AA937851, AA947124, AA954522, AA989224, A1017059, A1057158, A1088905, A1094996, A1096728, U46434, C01531
828519	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 463 of SEQ ID NO:40, b is an integer of 15 to 477, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:40, and where b is greater than or equal to a + 14.	W79671
828521	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	846 of SEQ ID NO:41. b is an integer of 15 to 860, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:41, and where b is greater than or equal to a + 14.	
828522	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1117 of SEQ ID NO:42, b is an integer of 15 to 1131, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:42, and where b is greater than or equal to a + 14.	T54309, T63973, T64041, T89636, T90270, R62731, R63686, H98873, N25098, N36012, N38881, N44246, N67168, AA047726, AA081019, AA120775, AA120774, AA128274, AA128571, AA551864, AA767989, AA902693
828525	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1320 of SEQ ID NO:43, b is an integer of 15 to 1334, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:43, and where b is greater than or equal to a + 14.	T48657, T48687, T48861, T49081, T49118, T53559, T58581, R23090, R26432, R26979, R27855, R32999, R34608, R64482, R64537, R66662, R67745, R69150, R70688, R77130, R81861, R82246, R82815, H03531, N39770, N41593, N42044, N57142, N94149, AA029208, AA149385, AA234086, N26326, N30247, N30819, N32903, N39539, D78905, D79060, N63792, AA029209
828529	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2337 of SEQ ID NO:44, b is an integer of 15 to 2351, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:44, and where b is greater than or equal to a + 14.	
828530	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1573 of SEQ ID NO:45, b is an integer of 15 to 1587, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:45, and where b is greater than or equal to a + 14.	T74290, T79269, R24408, R24409, R32342, R33507, R34284, R70908, H13795, H13794, N42196, AA013089, AA228469, AA505953, AA508121, AA602662, AA631903, AA865676, AA888323, A1032201, AA013090
828536	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 365 of SEQ ID NO:46, b is an integer of 15 to 379, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:46, and where b is greater than or equal to a + 14.	
828537	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1906 of SEQ ID NO:47, b is an integer of 15 to 1920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:47, and where b is greater than or equal to a + 14.	
828539	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 305 of SEQ ID NO:48, b is an integer of 15 to 319, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:48, and where b is greater than or equal to a + 14.	
828540	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 264 of SEQ ID NO:49, b is an integer of 15 to 278, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:49, and where b is greater than or equal to a + 14.	
828542	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 638 of SEQ ID NO:50, b is an integer of 15 to 652, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:50, and where b is greater than or equal to a + 14.	
828543	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 929 of SEQ ID NO:51, b is an integer of 15 to 943, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:51, and where b is greater than or equal to a + 14.	
828544	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 818 of SEQ ID NO:52, b is an integer of 15 to 832, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:52, and where b is greater than or equal to a + 14.	
828546	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1540 of SEQ ID NO:53, b is an integer of 15 to 1554, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:53, and where b is greater than or equal to a + 14.	H25827, H45313, W77774, AA587295, AA595924, AA603051, C00427
828550	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 267 of SEQ ID NO:54, b is an integer of 15 to 281, where both a and b correspond to the positions of	



	nucleotide residues shown in SEQ ID NO:54, and where b is greater than or equal to a + 14.	
828551	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 793 of SEQ ID NO:55, b is an integer of 15 to 807, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:55, and where b is greater than or equal to a + 14.	AA224996, AA225045, AA229587, AA524970, AA528287, AA569633, AA577923
828553	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 642 of SEQ ID NO:56, b is an integer of 15 to 656, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:56, and where b is greater than or equal to a + 14.	
828557	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 780 of SEQ ID NO:57, b is an integer of 15 to 794, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:57, and where b is greater than or equal to a + 14.	
828560	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1141 of SEQ ID NO:58, b is an integer of 15 to 1155, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:58, and where b is greater than or equal to a + 14.	R77295, R77355, N50880, AA228477, AA229199, AA229332, AA229430, AA229342, AA508222, AA508881, AA508713, AA522664, AA525054, AA531563, AA564505, AA627496, AA569813, AA908306
828561	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 478 of SEQ ID NO:59, b is an integer of 15 to 492, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:59, and where b is greater than or equal to a + 14.	
828565	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1603 of SEQ ID NO:60, b is an integer of 15 to 1617, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:60, and where b is greater than or equal to a + 14.	
828566	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1639 of SEQ ID NO:61, b is an integer of 15 to	T74741, R89314, H66527, H66526, H67472, H67473, H68173, H68172, H96621, H96622, N27775, N28518, N33857, N66931, AA149826, AA151993, AA152072, AA152078.

	1653, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:61, and where b is greater than or equal to a + 14.	AA188743
828567	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 426 of SEQ ID NO:62, b is an integer of 15 to 440, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:62, and where b is greater than or equal to a + 14.	
828568	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1048 of SEQ ID NO:63, b is an integer of 15 to 1062, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:63, and where b is greater than or equal to a + 14.	R01283, R62995, R63052, R97762, R97763, AA044146, AA044262, AA150771, AA429074, AA282254, AA282728, AA468569, AA586526, AA622172, AA631182, AA631273, AA809910, AA811682
828569	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 408 of SEQ ID NO:64, b is an integer of 15 to 422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:64, and where b is greater than or equal to a + 14.	
828570	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:65, b is an integer of 15 to 709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:65, and where b is greater than or equal to a + 14.	H77440
828571	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1288 of SEQ ID NO:66, b is an integer of 15 to 1302, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:66, and where b is greater than or equal to a + 14.	N27429, N34713, N51144, AA033703, AA033704, AA046488, AA046700, AA180131, AA514866, AA515411, AA527426, AA554163, AA745008, AA805885, AA862045, AA953025, A1075070
828574	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1032 of SEQ ID NO:67, b is an integer of 15 to 1046, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:67, and where b is greater than or equal to a + 14.	T92929, T93045, T92007, T92093, T98007, R28667, N79460, AA614258, AA741201, AA847513, A1083735
828575	Preferably excluded from the present invention are one or more polynucleotides comprising a	AA837738

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 487 of SEQ ID NO:68, b is an integer of 15 to 501, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:68, and where b is greater than or equal to a + 14.	
828577	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 567 of SEQ ID NO:69, b is an integer of 15 to 581, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:69, and where b is greater than or equal to a + 14.	AA169882, AA169883
828578	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1062 of SEQ ID NO:70, b is an integer of 15 to 1076, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:70, and where b is greater than or equal to a + 14.	T39452, T46945, T47319, T53621, T53622, T61271, T61323, R21194, R22811, R24705, R25199, R50467, R50468, R53758, R53759, R63087, R63131, R63969, R64075, R70570, R77117, R77118, R80611, R80612, H00653, H00742, H02619, H02725, N32242, N57336, N69947, N80785, N98328, N98569, W15554, AA029021, AA029143, AA037587, AA131825, AA131992, AA229266, AA507524, AA533307, AA533431, AA534110, AA534166, AA534281, AA535170, AA586608, AA593596, AA838623, AA885780, AA936945, AA642546
828580	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 362 of SEQ ID NO:71, b is an integer of 15 to 376, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:71, and where b is greater than or equal to a + 14.	
828581	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 360 of SEQ ID NO:72, b is an integer of 15 to 374, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:72, and where b is greater than or equal to a + 14.	AA507628
828583	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 405 of SEQ ID NO:73, b is an integer of 15 to 419, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:73, and where b is greater than or equal to a + 14.	
828585	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA234220

	formula of a-b, where a is any integer between 1 to 272 of SEQ ID NO:74, b is an integer of 15 to 286, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:74, and where b is greater than or equal to a + 14.	
828587	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 619 of SEQ ID NO:75, b is an integer of 15 to 633, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:75, and where b is greater than or equal to a + 14.	
828590	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 242 of SEQ ID NO:76, b is an integer of 15 to 256, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:76, and where b is greater than or equal to a + 14.	
828592	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 680 of SEQ ID NO:77, b is an integer of 15 to 694, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:77, and where b is greater than or equal to a + 14.	R52221, R54548, R97331, H57211, H55375, H55650
828593	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2548 of SEQ ID NO:78, b is an integer of 15 to 2562, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:78, and where b is greater than or equal to a + 14.	T57629, T58982, R19824, R45052, R45052, R55638, R59495, H18527, H19193, H28411, H39750, H62246, H62335, H91342, N62586, N63264, N80359, W81015, W94481, W94746, AA011589, AA029848, AA028978, AA043902, AA114931, AA114930, AA191597, AA232906, AA233035, AA258137, AA287367, AA287505, AA506450, AA525766, AA526128, AA548114, AA592904, AA808705, AA837733, AA876630, AA908724, N90333, AA007166
828594	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1596 of SEQ ID NO:79, b is an integer of 15 to 1610, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:79, and where b is greater than or equal to a + 14.	R06875, R06876, H89673, AA036961, AA150107, AA150515, AA983641
828596	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1034 of SEQ ID NO:80, b is an integer of 15 to 1048, where both a and b correspond to the	R09863, T84746, T98848, W01274, W48629, AA082189, AA426550, C04056

	positions of nucleotide residues shown in SEQ ID NO:80, and where b is greater than or equal to a + 14.	
828597	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1122 of SEQ ID NO:81, b is an integer of 15 to 1136, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:81, and where b is greater than or equal to a + 14.	R41797, R41797, H61049, N58312, N79783, W07281, W23730, W23738, W35330, W35337, AA235295, AA935231, AA995710, AI017376, AI088874, AI096890, W27549
828598	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 283 of SEQ ID NO:82, b is an integer of 15 to 297, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:82, and where b is greater than or equal to a + 14.	
828601	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2136 of SEQ ID NO:83, b is an integer of 15 to 2150, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:83, and where b is greater than or equal to a + 14.	
828605	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 587 of SEQ ID NO:84, b is an integer of 15 to 601, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:84, and where b is greater than or equal to a + 14.	
828608	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 520 of SEQ ID NO:85, b is an integer of 15 to 534, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:85, and where b is greater than or equal to a + 14.	AA244003, AA244034, AA506324
828609	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1023 of SEQ ID NO:86, b is an integer of 15 to 1037, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:86, and where b is greater than or equal to a + 14.	N48056, N52932, N53254, N64840, N75691, AI050871
828610	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA177029, AA177023, AA176984, AA177153, AA216404, AA224959, AA225025, AA225109, AA225143,

	<p>formula of a-b, where a is any integer between 1 to 583 of SEQ ID NO:87, b is an integer of 15 to 597, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:87, and where b is greater than or equal to a + 14.</p>	AA225206, AA225152, AA225228, AA225308, AA225322, AA225213, AA225409, AA225879, AA225880, AA225963, AA225974, AA226101, AA226227, AA226240, AA226384, AA226459, AA226556, AA226623, AA226632, AA226680, AA229222, AA229223, AA229482, AA229756, AA229964, AA244017, AA244091, AA244178, AA244052, AA244362, AA244452, AA397457, AA420631, AA420632, AA420633, AA420826, AA469131, AA469154, AA469201, AA469209, AA469226, AA469293, AA469373, AA470501, AA470548, AA492204, AA492255, AA492295, AA492311, AA492312, AA492327, AA492329, AA492334, AA492382, AA492389, AA492411, AA492438, AA492445, AA492451, AA494242, AA494243, AA494246, AA493268, AA493332, AA493445, AA502071, AA502154, AA502180, AA502191, AA502200, AA502978, AA502981, AA503115, AA503349, AA503429, AA503609, AA503666, AA503677, AA503682, AA503909, AA503926, AA504051, AA504066, AA506197, AA506319, AA506330, AA506475, AA506731, AA506804, AA506914, AA507128, AA507215, AA507217, AA507281, AA507287, AA507305, AA507373, AA507510, AA507545, AA507615, AA507633, AA507659, AA507664, AA507669, AA507679, AA507685, AA507759, AA507769, AA507778, AA507785, AA507789, AA507968, AA507983, AA507996, AA507995, AA508013, AA508078, AA508096, AA508112, AA508128, AA508144, AA508348, AA508360, AA508636, AA513240, AA514804, AA514915, AA516492, AA516500, AA522599, AA524675, AA524914, AA524998, AA525091, AA526491, AA526493, AA527728, AA527825, AA528273, AA530882, AA530906, AA530942, AA530954, AA531208, AA531341, AA531361, AA531381, AA531498, AA532578, AA532712, AA532960, AA533031, AA533053, AA533162, AA533961, AA534135, AA535497, AA535744, AA541576, AA541642, AA548220, AA548400, AA551463, AA551698, AA551727, AA551737, AA552827, AA552829, AA557784, AA557804, AA558634.
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828617	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 460 of SEQ ID NO:88, b is an integer of 15 to 474, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:88. and where b is greater than or equal to a + 14.	
828620	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:89, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:89, and where b is greater than or equal to a + 14.	AA228288, AA492280, AA507777, AA508355, AA527737, AA527805, AA559165, AA559352, AA564484, AA602957, AA659719, AA642055
828621	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 290 of SEQ ID NO:90, b is an integer of 15 to 304, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:90. and where b is greater than or equal to a + 14.	
828622	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 355 of SEQ ID NO:91, b is an integer of 15 to 369, where both a and b correspond to the positions of	AA570443

	nucleotide residues shown in SEQ ID NO:91, and where b is greater than or equal to a + 14.	
828623	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 301 of SEQ ID NO:92, b is an integer of 15 to 315, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:92, and where b is greater than or equal to a + 14.	
828625	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 687 of SEQ ID NO:93, b is an integer of 15 to 701, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:93, and where b is greater than or equal to a + 14.	
828632	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 445 of SEQ ID NO:94, b is an integer of 15 to 459, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:94, and where b is greater than or equal to a + 14.	
828635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2575 of SEQ ID NO:95, b is an integer of 15 to 2589, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:95, and where b is greater than or equal to a + 14.	R13230, R19016, R35012, R40312, R44087, R46776, R49399, R44087, R40312, R49399, H22883, H24275, H71951, N73720, W03891, W95360, W95359, AA055316, AA055317, AA135153, AA135291, AA195210, AA195427, AA236624, AA237000, AA548249, AA553712, AA595319, AA770603, AA947028, D78699
828637	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 443 of SEQ ID NO:96, b is an integer of 15 to 457, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:96, and where b is greater than or equal to a + 14.	
828639	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 502 of SEQ ID NO:97, b is an integer of 15 to 516, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:97, and where b is greater than or equal to a + 14.	
828645	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 300 of SEQ ID NO:98, b is an integer of 15 to 314.	



	where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:98, and where b is greater than or equal to $a + 14$ .	
828648	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 665 of SEQ ID NO:99, b is an integer of 15 to 679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:99, and where b is greater than or equal to $a + 14$ .	
828649	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 585 of SEQ ID NO:100, b is an integer of 15 to 599, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:100, and where b is greater than or equal to $a + 14$ .	
828651	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1175 of SEQ ID NO:101, b is an integer of 15 to 1189, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:101, and where b is greater than or equal to $a + 14$ .	
828652	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 237 of SEQ ID NO:102, b is an integer of 15 to 251, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:102, and where b is greater than or equal to $a + 14$ .	
828655	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 444 of SEQ ID NO:103, b is an integer of 15 to 458, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:103, and where b is greater than or equal to $a + 14$ .	
828657	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 425 of SEQ ID NO:104, b is an integer of 15 to 439, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:104, and where b is greater than or equal to $a + 14$ .	
828660	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 219 of SEQ ID NO:105, b is an integer of 15 to	

	233, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:105, and where b is greater than or equal to a + 14.	
828663	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 690 of SEQ ID NO:106, b is an integer of 15 to 704, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:106, and where b is greater than or equal to a + 14.	
828666	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 431 of SEQ ID NO:107, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:107, and where b is greater than or equal to a + 14.	
828668	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 578 of SEQ ID NO:108, b is an integer of 15 to 592, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:108, and where b is greater than or equal to a + 14.	
828669	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 367 of SEQ ID NO:109, b is an integer of 15 to 381, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:109, and where b is greater than or equal to a + 14.	
828670	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 337 of SEQ ID NO:110, b is an integer of 15 to 351, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:110, and where b is greater than or equal to a + 14.	W38772
828671	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1569 of SEQ ID NO:111, b is an integer of 15 to 1583, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:111, and where b is greater than or equal to a + 14.	
828672	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 417 of SEQ ID NO:112, b is an integer of 15 to	

	431, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:112, and where b is greater than or equal to a + 14.	
828675	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2828 of SEQ ID NO:113, b is an integer of 15 to 2842, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:113, and where b is greater than or equal to a + 14.	T56042, T56076, T39529, T39565, R20801, R20914, R99174, W76346, AA070283, AA100602, AA186719, AA192887, AA258594, AA258623, AA262429, AA458551, AA425795, AA426147, AA426000, AA428422, AA428672, AA429274, AA429569, AA429700, AA280808, AA280860, AA583152, AA604621, AA573460, AA737552, AA745643, AA809317, AA811436, AA831842, AA832058, AA837490, AA847879, AI089925, AA070162
828677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 254 of SEQ ID NO:114, b is an integer of 15 to 268, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:114, and where b is greater than or equal to a + 14.	
828678	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 786 of SEQ ID NO:115, b is an integer of 15 to 800, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:115, and where b is greater than or equal to a + 14.	
828679	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 632 of SEQ ID NO:116, b is an integer of 15 to 646, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:116, and where b is greater than or equal to a + 14.	
828680	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1520 of SEQ ID NO:117, b is an integer of 15 to 1534, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:117, and where b is greater than or equal to a + 14.	N64514, N70990, W01522, AA025937, AA025996, AA210760, AA215724, AA761682, AA768989, AA911839
828681	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 325 of SEQ ID NO:118, b is an integer of 15 to 339, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:118, and where b is greater than or equal to a + 14.	

828682	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 651 of SEQ ID NO:119, b is an integer of 15 to 665, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:119, and where b is greater than or equal to a + 14.	
828683	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 608 of SEQ ID NO:120, b is an integer of 15 to 622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:120, and where b is greater than or equal to a + 14.	
828686	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 875 of SEQ ID NO:121, b is an integer of 15 to 889, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:121, and where b is greater than or equal to a + 14.	
828687	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 118 of SEQ ID NO:122, b is an integer of 15 to 132, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:122, and where b is greater than or equal to a + 14.	
828688	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1886 of SEQ ID NO:123, b is an integer of 15 to 1900, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:123, and where b is greater than or equal to a + 14.	T92794, T92816, N50876, W20089, N90429, AA086404, AA112766, AA130846, AA195042, AA194974, AA235868, AA554284, AA639411, AA573456, AA804901, AA828540
828689	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1236 of SEQ ID NO:124, b is an integer of 15 to 1250, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:124, and where b is greater than or equal to a + 14.	
828692	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1175 of SEQ ID NO:125, b is an integer of 15 to 1189, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	T72780, R07981, R09868, T96304, H51978

	NO:125, and where b is greater than or equal to a + 14.	
828693	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 414 of SEQ ID NO:126, b is an integer of 15 to 428, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:126, and where b is greater than or equal to a + 14.	
828694	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 631 of SEQ ID NO:127, b is an integer of 15 to 645, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:127, and where b is greater than or equal to a + 14.	R02262
828696	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 482 of SEQ ID NO:128, b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:128, and where b is greater than or equal to a + 14.	
828697	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 410 of SEQ ID NO:129, b is an integer of 15 to 424, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:129, and where b is greater than or equal to a + 14.	AA059063
828699	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1695 of SEQ ID NO:130, b is an integer of 15 to 1709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:130, and where b is greater than or equal to a + 14.	R75912, H40206, H40207, H41559, R87478, H52696, H52717, N40190, AA503759, AA504325, AA553825, AA553899, H64647, AA582193, AA580220, AA687790, AA809845, AA917674, AA935183, AI004172, AI027576, C14410, C14461, C14497, C14511
828702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 852 of SEQ ID NO:131, b is an integer of 15 to 866, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:131, and where b is greater than or equal to a + 14.	N79392
828703	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1579 of SEQ ID NO:132, b is an integer of 15 to 1593, where both a and b correspond to the	T69829, R59224, H11661, AA587352, AA807572, AA806747, AA865576, AA912231, AI002338

	positions of nucleotide residues shown in SEQ ID NO:132, and where b is greater than or equal to a + 14.	
828704	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 394 of SEQ ID NO:133, b is an integer of 15 to 408, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:133, and where b is greater than or equal to a + 14.	
828706	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2727 of SEQ ID NO:134, b is an integer of 15 to 2741, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:134, and where b is greater than or equal to a + 14.	AA099313, AA099927, AA101522, AA101521, AA102781, AA102782, AA126249, AA134732, AA459009, AA459230, AA524248, AA524247, AA622869, AA744977, AA933725, AI000417, U65740
828708	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 672 of SEQ ID NO:135, b is an integer of 15 to 686, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:135, and where b is greater than or equal to a + 14.	AA736960
828711	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 228 of SEQ ID NO:136, b is an integer of 15 to 242, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:136, and where b is greater than or equal to a + 14.	
828712	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 531 of SEQ ID NO:137, b is an integer of 15 to 545, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:137, and where b is greater than or equal to a + 14.	
828713	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 382 of SEQ ID NO:138, b is an integer of 15 to 396, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:138, and where b is greater than or equal to a + 14.	
828714	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2757 of SEQ ID NO:139, b is an integer of 15 to	

	2771, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:139, and where b is greater than or equal to a + 14.	
828715	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 408 of SEQ ID NO:140, b is an integer of 15 to 422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:140, and where b is greater than or equal to a + 14.	
828718	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1616 of SEQ ID NO:141, b is an integer of 15 to 1630, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:141, and where b is greater than or equal to a + 14.	R52059, R52058, H85868, W92475, AA046292, AA463500, AA463546, AA576113, AA862446
828723	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 250 of SEQ ID NO:142, b is an integer of 15 to 264, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:142, and where b is greater than or equal to a + 14.	
828726	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 622 of SEQ ID NO:143, b is an integer of 15 to 636, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:143, and where b is greater than or equal to a + 14.	
828728	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 486 of SEQ ID NO:144, b is an integer of 15 to 500, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:144, and where b is greater than or equal to a + 14.	N39508, W05658, AA083301, AA159253, AA195825
828730	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1931 of SEQ ID NO:145, b is an integer of 15 to 1945, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:145, and where b is greater than or equal to a + 14.	
828732	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 1100 of SEQ ID NO:146, b is an integer of 15 to 1114, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:146, and where b is greater than or equal to a + 14.	
828733	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 532 of SEQ ID NO:147, b is an integer of 15 to 546, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:147, and where b is greater than or equal to a + 14.	
828735	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1749 of SEQ ID NO:148, b is an integer of 15 to 1763, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:148, and where b is greater than or equal to a + 14.	
828736	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 357 of SEQ ID NO:149, b is an integer of 15 to 371, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:149, and where b is greater than or equal to a + 14.	
828739	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 418 of SEQ ID NO:150, b is an integer of 15 to 432, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:150, and where b is greater than or equal to a + 14.	R36043
828740	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 387 of SEQ ID NO:151, b is an integer of 15 to 401, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:151, and where b is greater than or equal to a + 14.	
828742	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 837 of SEQ ID NO:152, b is an integer of 15 to 851, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:152, and where b is greater than or equal to a + 14.	
828748	Preferably excluded from the present invention are one or more polynucleotides comprising a	AA225966, AA226113, AA229173, AA229167, AA229535, AA243985.



	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1664 of SEQ ID NO:153, b is an integer of 15 to 1678, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:153, and where b is greater than or equal to a + 14.	AA244099, AA244206, AA259243, AA420690, AA467761, AA467944, AA468120, AA468151, AA468187, AA468326, AA468918, AA468995, AA469129, AA469199, AA470575, AA502955, AA503272, AA506649, AA507335, AA507799, AA514825, AA522473, AA522848, AA524651, AA524893, AA525058, AA531386, AA532387, AA532926, AA534072, AA534246, AA535303, AA535837, AA551447, AA551738, AA558900, AA588263, AA587715, AA593380, AA595047, AA595357, AA595465, AA595601, AA603572, AA604709, AA635888, AA640473, AA569666, AA569670, AA573539, AA573587, AA574390, AA578439, AA578628, AA579001, AA579026, AA579117, AA579310, AA565962, AA566046, AA654974, AA657781, AA657831, AA658156, AA658207, AA658243, AA658463, AA658877, AA659198, AA659306, AA687563, AA687852, AA742871, AA876666, AA887095, AA888488, AA934855, AA935419, AA937807, AA937854, AA978237
828749	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1144 of SEQ ID NO:154, b is an integer of 15 to 1158, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:154, and where b is greater than or equal to a + 14.	T65384, R46577, R52660, R46577, H11492, N73810, N99718, AA121044, AA126520, AA126579, AA126687
828752	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1955 of SEQ ID NO:155, b is an integer of 15 to 1969, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:155, and where b is greater than or equal to a + 14.	AA492170
828753	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 386 of SEQ ID NO:156, b is an integer of 15 to 400, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:156, and where b is greater than or equal to a + 14.	
828754	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	N42714, N32500

	708 of SEQ ID NO:157, b is an integer of 15 to 722, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:157, and where b is greater than or equal to a + 14.	
828757	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1186 of SEQ ID NO:158, b is an integer of 15 to 1200, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:158, and where b is greater than or equal to a + 14.	T90246, T90691, R14702, R34647, R42424, R49176, R42424, R49176, H06287, H06339, H14778, N69116, C03936, C15913
828761	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 331 of SEQ ID NO:159, b is an integer of 15 to 345, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:159, and where b is greater than or equal to a + 14.	
828762	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 462 of SEQ ID NO:160, b is an integer of 15 to 476, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:160, and where b is greater than or equal to a + 14.	
828764	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 506 of SEQ ID NO:161, b is an integer of 15 to 520, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:161, and where b is greater than or equal to a + 14.	
828765	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 325 of SEQ ID NO:162, b is an integer of 15 to 339, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:162, and where b is greater than or equal to a + 14.	
828766	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 343 of SEQ ID NO:163, b is an integer of 15 to 357, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:163, and where b is greater than or equal to a + 14.	
828767	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	1065 of SEQ ID NO:164, b is an integer of 15 to 1079, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:164, and where b is greater than or equal to a + 14.	
828768	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1311 of SEQ ID NO:165, b is an integer of 15 to 1325, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:165, and where b is greater than or equal to a + 14.	
828770	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 380 of SEQ ID NO:166, b is an integer of 15 to 394, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:166, and where b is greater than or equal to a + 14.	
828771	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 503 of SEQ ID NO:167, b is an integer of 15 to 517, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:167, and where b is greater than or equal to a + 14.	
828772	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 327 of SEQ ID NO:168, b is an integer of 15 to 341, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:168, and where b is greater than or equal to a + 14.	
828773	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 336 of SEQ ID NO:169, b is an integer of 15 to 350, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:169, and where b is greater than or equal to a + 14.	
828775	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 427 of SEQ ID NO:170, b is an integer of 15 to 441, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:170, and where b is greater than or equal to a + 14.	
828776	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	AA127485

	formula of a-b, where a is any integer between 1 to 389 of SEQ ID NO:171, b is an integer of 15 to 403, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:171, and where b is greater than or equal to a + 14.	
828777	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 970 of SEQ ID NO:172, b is an integer of 15 to 984, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:172, and where b is greater than or equal to a + 14.	T86451, R87531, R87627, R91402, R92659, H98729, N24299, W19089, W20421, AA454940, AA605076, AA639539, AA662751, AA714010, AA743934, AA746310, AA888099, AA953728, AA976688, A1027564
828778	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1180 of SEQ ID NO:173, b is an integer of 15 to 1194, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:173, and where b is greater than or equal to a + 14.	
828780	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 687 of SEQ ID NO:174, b is an integer of 15 to 701, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:174, and where b is greater than or equal to a + 14.	
828781	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1167 of SEQ ID NO:175, b is an integer of 15 to 1181, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:175, and where b is greater than or equal to a + 14.	R17769, R39304, R42342, R42342, R61526, H05114, H08622, N63035, AA039717, AA039716, AA039852, AA235700, AA255466, AA461108, AA918115, AA938595, W00511, C00278
828782	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 475 of SEQ ID NO:176, b is an integer of 15 to 489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:176, and where b is greater than or equal to a + 14.	
828783	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 239 of SEQ ID NO:177, b is an integer of 15 to 253, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:177, and where b is greater than or equal to a + 14.	
828784	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 379 of SEQ ID NO:178, b is an integer of 15 to 393, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:178, and where b is greater than or equal to a + 14.	
828785	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 451 of SEQ ID NO:179, b is an integer of 15 to 465, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:179, and where b is greater than or equal to a + 14.	H28735, AA541256, AA935694
828786	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 518 of SEQ ID NO:180, b is an integer of 15 to 532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:180, and where b is greater than or equal to a + 14.	T50920
828788	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 800 of SEQ ID NO:181, b is an integer of 15 to 814, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:181, and where b is greater than or equal to a + 14.	AA765439
828790	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 303 of SEQ ID NO:182, b is an integer of 15 to 317, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:182, and where b is greater than or equal to a + 14.	
828791	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 229 of SEQ ID NO:183, b is an integer of 15 to 243, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:183, and where b is greater than or equal to a + 14.	
828792	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1134 of SEQ ID NO:184, b is an integer of 15 to 1148, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:184, and where b is greater than or equal to a + 14.	
828794	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1957 of SEQ ID NO:185, b is an integer of 15 to 1971, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:185, and where b is greater than or equal to a + 14.	
828797	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 352 of SEQ ID NO:186, b is an integer of 15 to 366, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:186, and where b is greater than or equal to a + 14.	
828798	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 336 of SEQ ID NO:187, b is an integer of 15 to 350, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:187, and where b is greater than or equal to a + 14.	
828799	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 361 of SEQ ID NO:188, b is an integer of 15 to 375, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:188, and where b is greater than or equal to a + 14.	R92181
828801	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 351 of SEQ ID NO:189, b is an integer of 15 to 365, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:189, and where b is greater than or equal to a + 14.	
828802	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 803 of SEQ ID NO:190, b is an integer of 15 to 817, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:190, and where b is greater than or equal to a + 14.	
828803	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 576 of SEQ ID NO:191, b is an integer of 15 to 590, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:191, and where b is greater than or equal to a + 14.	
828804	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 294 of SEQ ID NO:192, b is an integer of 15 to 308, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:192, and where b is greater than or equal to a + 14.	
828805	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 329 of SEQ ID NO:193, b is an integer of 15 to 343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:193, and where b is greater than or equal to a + 14.	
828807	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 676 of SEQ ID NO:194, b is an integer of 15 to 690, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:194, and where b is greater than or equal to a + 14.	AA507550, AA613671, AA991871, A1073898
828809	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 223 of SEQ ID NO:195, b is an integer of 15 to 237, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:195, and where b is greater than or equal to a + 14.	
828810	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 253 of SEQ ID NO:196, b is an integer of 15 to 267, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:196, and where b is greater than or equal to a + 14.	
828811	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 429 of SEQ ID NO:197, b is an integer of 15 to 443, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:197, and where b is greater than or equal to a + 14.	
828817	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 194 of SEQ ID NO:198, b is an integer of 15 to 208, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:198, and where b is greater than or equal to a + 14.	
828818	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 244 of SEQ ID NO:199, b is an integer of 15 to 258, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:199, and where b is greater than or equal to a + 14.	
828819	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 879 of SEQ ID NO:200, b is an integer of 15 to 893, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:200, and where b is greater than or equal to a + 14.	R28397, R35050, R82429, AA523252, AA541515, AA888589, AA931260, AA969512, N90287
828820	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 489 of SEQ ID NO:201, b is an integer of 15 to 503, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:201, and where b is greater than or equal to a + 14.	
828821	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 424 of SEQ ID NO:202, b is an integer of 15 to 438, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:202, and where b is greater than or equal to a + 14.	
828823	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 862 of SEQ ID NO:203, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:203, and where b is greater than or equal to a + 14.	
828824	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1490 of SEQ ID NO:204, b is an integer of 15 to 1504, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:204, and where b is greater than or equal to a + 14.	T63961, R37805, R41200, R41200, H06703, H14569, N35284, W84891, W84386, AA020009, AA115923, AA191098, AA720881, AA825322, AA007194
828825	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 511 of SEQ ID NO:205, b is an integer of 15 to 525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:205, and where b is greater than or equal to a + 14.	T90840, R97506, R97507, H56561, H90159, AA548594
828826	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	R54121, H53524, H83780, N33845, AA150188, AA150364, AA193510, AA236206, AA236207, AA256878.



	formula of a-b, where a is any integer between 1 to 2480 of SEQ ID NO:206, b is an integer of 15 to 2494, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:206, and where b is greater than or equal to a + 14.	AA255472, AA292484, AA292485, AA514616, AA808712, AA812205
828829	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 866 of SEQ ID NO:207, b is an integer of 15 to 880, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:207, and where b is greater than or equal to a + 14.	
828830	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 626 of SEQ ID NO:208, b is an integer of 15 to 640, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:208, and where b is greater than or equal to a + 14.	W47311
828833	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 289 of SEQ ID NO:209, b is an integer of 15 to 303, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:209, and where b is greater than or equal to a + 14.	
828835	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1154 of SEQ ID NO:210, b is an integer of 15 to 1168, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:210, and where b is greater than or equal to a + 14.	
828838	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3119 of SEQ ID NO:211, b is an integer of 15 to 3133, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:211, and where b is greater than or equal to a + 14.	
828840	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 666 of SEQ ID NO:212, b is an integer of 15 to 680, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:212, and where b is greater than or equal to a + 14.	T67663, N51807, N94795
828845	Preferably excluded from the present invention are	AA278542

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 549 of SEQ ID NO:213, b is an integer of 15 to 563, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:213, and where b is greater than or equal to a + 14.	
828846	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2622 of SEQ ID NO:214, b is an integer of 15 to 2636, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:214, and where b is greater than or equal to a + 14.	
828847	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1808 of SEQ ID NO:215, b is an integer of 15 to 1822, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:215, and where b is greater than or equal to a + 14.	
828849	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3113 of SEQ ID NO:216, b is an integer of 15 to 3127, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:216, and where b is greater than or equal to a + 14.	
828850	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1515 of SEQ ID NO:217, b is an integer of 15 to 1529, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:217, and where b is greater than or equal to a + 14.	T89442, T89529, R00855, R01510, R17037, R44677, R44677, W71999, W76568, AA028176, AA594435, AA630811, AA640365, AA570503, AA827402, A1001038
828852	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1086 of SEQ ID NO:218, b is an integer of 15 to 1100, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:218, and where b is greater than or equal to a + 14.	N25191, N51394, AA085653
828853	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1778 of SEQ ID NO:219, b is an integer of 15 to	T69893, R23246, R23322, R23610, R26164, R76851, R78355, R78356, W37071, AA281297, AA281298, AA287617, AA286726, AA830753, AA907191, AA937081

	1792, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:219, and where b is greater than or equal to a + 14.	
828857	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1296 of SEQ ID NO:220, b is an integer of 15 to 1310, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:220, and where b is greater than or equal to a + 14.	H87149, N29514, N32038, W49771, W69834, W69944, W69906, W70171, AA035645, AA262486, AA280793, AA280787, AA468735, AA470769, AA814845, AA877855, AA903806
828861	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1355 of SEQ ID NO:221, b is an integer of 15 to 1369, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:221, and where b is greater than or equal to a + 14.	
828866	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 778 of SEQ ID NO:222, b is an integer of 15 to 792, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:222, and where b is greater than or equal to a + 14.	R17863, H06471, AA157721
828872	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 907 of SEQ ID NO:223, b is an integer of 15 to 921, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:223, and where b is greater than or equal to a + 14.	R87888, R87900, R87908, N49168, AA931266
828874	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1965 of SEQ ID NO:224, b is an integer of 15 to 1979, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:224, and where b is greater than or equal to a + 14.	T87038, R70347, H39025, R91475, H57830, H59954, H62220, H62316, H65258, H65259, H95743, N54406, W25201, W32973, W69360, W69399, W84707, W90181, AA045489, AA058908, AA059484, AA126289, AA126390, AA127568, AA171412, AA171832, AA548030, AA593288, AA595330, AA622098, AA573531, AA574415, AA865443
828875	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 527 of SEQ ID NO:225, b is an integer of 15 to 541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:225, and where b is greater than or equal to a + 14.	
828877	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 263 of SEQ ID NO:226, b is an integer of 15 to 277, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:226, and where b is greater than or equal to a + 14.	
828878	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2055 of SEQ ID NO:227, b is an integer of 15 to 2069, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:227, and where b is greater than or equal to a + 14.	T66330, R26894, R27126, R69123, R69242, R82299, R82300, W07548, W40127, W61081, W63740, AA088736, AA088851, AA416637, AA425692, AA587736, AA574419, AA659481, AA746137, AA827964, AA873416, AA876962, AA886118, AA913307, W63541, AA091722
828879	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 457 of SEQ ID NO:228, b is an integer of 15 to 471, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:228, and where b is greater than or equal to a + 14.	
828881	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1626 of SEQ ID NO:229, b is an integer of 15 to 1640, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:229, and where b is greater than or equal to a + 14.	
828885	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1956 of SEQ ID NO:230, b is an integer of 15 to 1970, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:230, and where b is greater than or equal to a + 14.	T66265, R00322, R05577, R14288, R40578, N35835, W67698, W68707, AA226782, AA227401, AA917573, A1096970, C01407
828886	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 296 of SEQ ID NO:231, b is an integer of 15 to 310, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:231, and where b is greater than or equal to a + 14.	
828887	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2819 of SEQ ID NO:232, b is an integer of 15 to 2833, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:232, and where b is greater than or equal to a + 14.	
828889	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 678 of SEQ ID NO:233, b is an integer of 15 to 692, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:233, and where b is greater than or equal to a + 14.	A1084904, N87764
828891	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1339 of SEQ ID NO:234, b is an integer of 15 to 1353, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:234, and where b is greater than or equal to a + 14.	
828899	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 332 of SEQ ID NO:235, b is an integer of 15 to 346, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:235, and where b is greater than or equal to a + 14.	
828907	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2257 of SEQ ID NO:236, b is an integer of 15 to 2271, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:236, and where b is greater than or equal to a + 14.	
828911	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3036 of SEQ ID NO:237, b is an integer of 15 to 3050, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:237, and where b is greater than or equal to a + 14.	
828914	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2788 of SEQ ID NO:238, b is an integer of 15 to 2802, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:238, and where b is greater than or equal to a + 14.	
828917	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T48789, T48790, T52689, T52690, T54143, T57627, T58981, T60334, T63023, T63169, T64611, T68165.

	<p>formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:239, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:239, and where b is greater than or equal to a + 14.</p>	<p>T73770, T92858, R09683, R05784, R05870, R23705, R24243, R25436, R26263, R26661, R31482, R33617, R52663, R54888, R55790, R63634, R64491, R65588, R66756, R74348, R74447, R77767, R77861, H24648, H24647, H25483, H25708, H25719, H30170, H39683, H42201, H50627, H61272, H74187, H73366, H84457, H96852, H97161, N21258, N24067, N25124, N25891, N32256, N35943, N39665, N59887, N74237, N75946, N77028, N91815, N94382, W01241, W04970, W16791, W31249, W37991, W42625, W42503, W42504, W45097, W46997, W47010, W47011, W47035, W58226, W60191, W74239, AA011342, AA011422, AA053421, AA053142, AA069730, AA069687, AA071401, AA079362, AA085841, AA088476, AA088867, AA099339, AA098900, AA099401, AA099509, AA099626, AA100481, AA111899, AA112344, AA128689, AA128504, AA130068, AA130069, AA133988, AA130205, AA134388, AA130699, AA131164, AA131119, AA135908, AA143614, AA148147, AA151655, AA151855, AA149710, AA150148, AA152217, AA150454, AA156656, AA156942, AA158064, AA158065, AA160927, AA167640, AA167760, AA173558, AA173723, AA188571, AA188806, AA188862, AA190996, AA191121, AA252461, AA286842, AA513431, AA523544, AA533369, AA534903, AA541751, AA548088, AA552311, AA563748, AA563790, AA564990, AA565005, AA588690, AA594295, AA600956, AA604061, AA604282, AA604810, AA614124, AA631612, AA632221, AA569331, AA573854, AA577627, AA579851, AA661566, AA689517, AA740358, AA740572, AA747358, AA768322, AA827032, AA831321, AA831490, AA862010, AA862071, AA872486, AA876655, AA878041, AA902900, AA907481, AA932203, AA976947, AA995848, A1005047, A1051152, A1053717, A1053913, A1053985, A1054236, F18795, D82560, W28635, W68223, C02865, C05961, C06214, C14019, AA641827, AA642221</p>
828921	Preferably excluded from the present invention arc	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1320 of SEQ ID NO:240, b is an integer of 15 to 1334, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:240, and where b is greater than or equal to a + 14.	
828922	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2424 of SEQ ID NO:241, b is an integer of 15 to 2438, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:241, and where b is greater than or equal to a + 14.	R14071, R40196, R40196, W78082, AA002041, AA001835, AA167058, AA564814, AA604562, AA831678, AA902298, AA922990, N88270
828924	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 125 of SEQ ID NO:242, b is an integer of 15 to 139, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:242, and where b is greater than or equal to a + 14.	
828925	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 465 of SEQ ID NO:243, b is an integer of 15 to 479, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:243, and where b is greater than or equal to a + 14.	
828926	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 570 of SEQ ID NO:244, b is an integer of 15 to 584, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:244, and where b is greater than or equal to a + 14.	AA021328, AA165340
828928	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 318 of SEQ ID NO:245, b is an integer of 15 to 332, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:245, and where b is greater than or equal to a + 14.	
828930	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1603 of SEQ ID NO:246, b is an integer of 15 to 1617, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:246, and where b is greater than or equal to a +	R13197, R22953, R23059, R34735, H16860, H17441, H30722, H96486, H98091, N25031, N26040, W37582, W74506, W73933, W79218, W79053, AA017108, AA027970, AA027971, AA058997, AA223857, AA468648, AA506695, AA513402, AA627542, AA627543.

	14.	AA687974. AA748356. AA749265. AA766155. AA769265. AA810698. AA810803. AA811177. AA813864. AA815128. AA837374. AA907206. AA907432. AA911140. AA911319. AA989380. AI088862. N85247
828935	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1435 of SEQ ID NO:247, b is an integer of 15 to 1449, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:247, and where b is greater than or equal to a + 14.	
828937	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1470 of SEQ ID NO:248, b is an integer of 15 to 1484, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:248, and where b is greater than or equal to a + 14.	T78834, T78835, T99250, T99297, R12511, T26404, R37406, R41280, R41370, R41371, R52358, R52359, R41280, R41370, R41371, R81208, R81320, R82778, H44863, H54693, H54584, H71670, H72234, H79199, H80064, H80065, H90038, H90715, H96868, H96874, H98754, N20017, N21625, N23354, N28826, N28864, N31950, N33092, N35337, N35930, N36772, N44708, N59759, N63774, N64419, N70550, N73583, N75550, N78219, N78798, N92686, N93067, W06846, W07226, W32114, W32172, W35376, W38996, W39688, W45043, W55883, W55882, W58545, W58627, W68228, W78990, W80596, W87464, N91505, AA026436, AA062585, AA112289, AA127552, AA127553, AA171942, AA172148, AA224492, AA279390, AA505278, AA505337, AA527368, AA531405, AA532853, AA534544, AA535699, AA582848, AA587609, AA568827, AA635925, AA576357, AA576891, AA579716, AA565856, AA687556, AA736748, AA877644, AA885760, AA917890, AA918826, AA938647, AA953594, AA971036, AA973846, AA976240, AA976836, AA948139, AI086410, W01797, N86155, N86407, AA026382, AA092135, AA093922, AA094184
828940	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2408 of SEQ ID NO:249, b is an integer of 15 to 2422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:249, and where b is greater than or equal to a +	T61139, H60808, H66215, H86154, H86598, N66951, AA045564, AA053520, AA054053, AA054010, AA055556, AA055592, AA055887, AA085899, AA088546, AA100472, AA102305, AA100774, AA115726, AA115790, AA130430, AA130456, AA134504, AA130756, AA132265,



	14.	AA134988, AA135921, AA143560, AA143592, AA146693, AA146644, AA146790, AA152341, AA149726, AA149780, AA152003, AA157705, AA157715, AA157718, AA157719, AA157730, AA180379, AA226737, AA227302, AA527374, C05254
828942	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 560 of SEQ ID NO:250, b is an integer of 15 to 574, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:250, and where b is greater than or equal to a + 14.	H51878
828943	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1030 of SEQ ID NO:251, b is an integer of 15 to 1044, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:251, and where b is greater than or equal to a + 14.	
828946	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1015 of SEQ ID NO:252, b is an integer of 15 to 1029, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:252, and where b is greater than or equal to a + 14.	H49140, H50139, N91808, W17361, W23877, W25195, W31242, AA116089, AA116090, AA150544, AA150853, AA417973, AA418133, AA279993, AA280052, AA583751, AA587199, AA618421, AA814427, AA830028, AA916097, AA961686, AA974254, AA987758, AI083878, AI085516, N94820, N95456
828947	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 461 of SEQ ID NO:253, b is an integer of 15 to 475, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:253, and where b is greater than or equal to a + 14.	
828956	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1710 of SEQ ID NO:254, b is an integer of 15 to 1724, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:254, and where b is greater than or equal to a + 14.	T80047, T80393, H22804, N33236, W55892, AA043830, AA062632, AA069280, AA078770, AA082403, AA101062, AA459984, AA460077, AA501353, AA535081, AA588749, AA577376, AA814781, AA836428, AA876439, AA916459, AA938494
828958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 292 of SEQ ID NO:255, b is an integer of 15 to 306, where both a and b correspond to the positions	

	of nucleotide residues shown in SEQ ID NO:255, and where b is greater than or equal to a + 14.	
828965	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 876 of SEQ ID NO:256, b is an integer of 15 to 890, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:256, and where b is greater than or equal to a + 14.	T60299, R07493, R02543, R02660, N23126, N26234, N28744, N80029, N92370, W06992, W24565, W56160, AA058766, AA082121, AA102497, AA133193, AA157043, AA181057, AA459909, AA419349, AA428256, AA522732, AA531204, AA588687, AA622529, AA631698, AA687351, AA736613, AA736615, AA743076, AA805965, AA825789, AA873396, AA934548, AA984002
828969	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1145 of SEQ ID NO:257, b is an integer of 15 to 1159, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:257, and where b is greater than or equal to a + 14.	R34277, R35477, R40127, R40127, R56401, R63536, R63587, R68336, R68415, R68416, R68428, R68429, R72408, R72447, R75996, R76825, H00671, H00761, H00909, H00910, H06173, H06437, H67367, H67416, H95558, N21675, N22870, N27226, N30906, N34567, N56770, N62120, N72850, N91825, W03069, W31262, W70204, W75946, AA009777, AA009498, AA081398, AA081947, AA082173, AA082577, AA101142, AA102573, AA102587, AA159158, AA279295, AA279321, AA587132, AA576939, AA720862, AA748173, AA808533, AA878214, AA962702, AA987447, AA987635, AA989319, AA995406, A1031632, N84444, A1097592, C02910, C14651, AA081397, C15440
828971	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 741 of SEQ ID NO:258, b is an integer of 15 to 755, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:258, and where b is greater than or equal to a + 14.	
828973	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 700 of SEQ ID NO:259, b is an integer of 15 to 714, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:259, and where b is greater than or equal to a + 14.	
828980	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 511 of SEQ ID NO:260, b is an integer of 15 to 525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:260, and where b is greater than or equal to a + 14.	AA171806, AA223318

828984	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2986 of SEQ ID NO:261, b is an integer of 15 to 3000, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:261, and where b is greater than or equal to a + 14.	T80804, T81207, R66564, R79533, H10212, H10266, N47700, N47701, N47714, N47715, W92453, W92454, AA047175, AA057046, AA084865, AA084994, AA085435, AA088196, AA088369, AA102606, AA102637, AA102681, AA129398, AA129437, AA133824, AA133835, AA134870, AA155636, AA155692, AA173150, AA173277, AA181676, AA172185, AA187844, AA188417, AA188720, AA203343, AA223606, AA223765, AA232539, AA253486, AA258817, AA258912, AA418911, AA426576, AA428207, AA282012, AA282185, AA506517, AA581113, AA640599, AA864428, AA872063, AA928645, AA947052, AA983384, W28603, AA640958
828985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 952 of SEQ ID NO:262, b is an integer of 15 to 966, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:262, and where b is greater than or equal to a + 14.	
828988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2724 of SEQ ID NO:263, b is an integer of 15 to 2738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:263, and where b is greater than or equal to a + 14.	T73414, R12106, T66627, T66628, T78284, R16041, R16042, R36860, R37936, R61426, R63310, H40110, H40174, N25567, N30486, N34167, N44865, N52758, N57579, N68031, W04668, W31769, W32476, W32662, AA029481, AA029545, AA215402, AA278628, AA278627, AA282001, AA483843, AA576431, AA659932, AA749063, AA768638, AA768824, AA809759, AA830249, N83750, A1097104
828993	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1506 of SEQ ID NO:264, b is an integer of 15 to 1520, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:264, and where b is greater than or equal to a + 14.	
828995	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1554 of SEQ ID NO:265, b is an integer of 15 to 1568, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:265, and where b is greater than or equal to a + 14.	

829000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 531 of SEQ ID NO:266, b is an integer of 15 to 545, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:266, and where b is greater than or equal to a + 14.	T84984, H62305, N94075
829005	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 748 of SEQ ID NO:267, b is an integer of 15 to 762, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:267, and where b is greater than or equal to a + 14.	T81847, R31803, R63658, H80178, AA086064, AA730231, AA805602, N84214, AA091994
829009	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1419 of SEQ ID NO:268, b is an integer of 15 to 1433, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:268, and where b is greater than or equal to a + 14.	
829010	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2264 of SEQ ID NO:269, b is an integer of 15 to 2278, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:269, and where b is greater than or equal to a + 14.	
829012	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2519 of SEQ ID NO:270, b is an integer of 15 to 2533, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:270, and where b is greater than or equal to a + 14.	T46984, T46985, T60315, T60340, T91262, T82866, T85699, R18936, R22449, R22501, R44051, R44051, R62350, R62351, R62967, R63021, R67538, R67539, H00265, H00266, H05754, H05861, H17661, H17778, H37895, R84704, R85663, R85705, R92774, H71754, H86241, H86596, N77995, N94481, W23930, W33005, W42716, W42804, W42856, W42911, W48687, W48688, W51894, W60144, AA013165, AA013166, AA016027, AA016116, AA019160, AA019173, AA019737, AA019781, AA019874, AA019940, AA020855, AA021014, AA039946, AA039812, AA044966, AA059316, AA059332, AA062810, AA069688, AA074166, AA074690, AA074819, AA079227, AA086267, AA085941, AA101899, AA111855, AA112207, AA112317, AA113083, AA113110, AA112379, AA128454.

		AA129184. AA134373. AA134374. AA147440. AA147441. AA147468. AA147469. AA152007. AA182029. AA188388. AA193685. AA514744. AA525480. AA553895. AA559119. AA580724. AA595036. AA600916. AA601895. AA602350. AA631450. AA633022. AA640333. AA580604. AA715813. AA806865. AA808711. AA811858. AA833843. AA862552. AA873179. AA878958. AA887089. AA918330. AA922879. AA937320. AA977779. AA987809. AA991856. AA999930. AI081179. W28427. N86448. AA640960. AA641152
829013	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1604 of SEQ ID NO:271, b is an integer of 15 to 1618, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:271, and where b is greater than or equal to a + 14.	R12986, R32825, R32839, R32927, R32942, R40183, R52946, R53730, R40183, R66041, H98989, N52010, N54624, N66635, AA046243, AA149949, AA253362, AA253485, AA258773, AA257971, AA262281, AA422167, AA262911, AA513150, AA687117, AA687257, AA747442, AA748820, AA749108, AA767245, AA806305, AA811958, AA903407, AA937560, AA938330, AA976840, AA094074
829019	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 456 of SEQ ID NO:272, b is an integer of 15 to 470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:272, and where b is greater than or equal to a + 14.	
829020	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 969 of SEQ ID NO:273, b is an integer of 15 to 983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:273, and where b is greater than or equal to a + 14.	AA136693, AA136791, AA233217, AA419607
829021	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1992 of SEQ ID NO:274, b is an integer of 15 to 2006, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:274, and where b is greater than or equal to a + 14.	T94357, T94712, R12024, R12980, R37092, R40178, R40178, H06066, H13404, N70651, W06945, N90742, AA071520, AA082342, AA086292, AA111847, AA508760, AA513083, AA513134, AA975983, AA987297, N86943
829026	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1362 of SEQ ID NO:275, b is an integer of 15 to	R46780, R56425, H14131, H14048. H19990, H44884, W73060, W76648, AA258220, AA732283, AA732519, AA748619, AA768036, AA830813

	1376, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:275, and where b is greater than or equal to a + 14.	
829030	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2580 of SEQ ID NO:276, b is an integer of 15 to 2594, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:276, and where b is greater than or equal to a + 14.	
829035	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 665 of SEQ ID NO:277, b is an integer of 15 to 679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:277, and where b is greater than or equal to a + 14.	
829041	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1464 of SEQ ID NO:278, b is an integer of 15 to 1478, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:278, and where b is greater than or equal to a + 14.	T64828, R13411, R40922, H17358, AA829407, AA991316
829045	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2307 of SEQ ID NO:279, b is an integer of 15 to 2321, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:279, and where b is greater than or equal to a + 14.	R94934, R95018, R96941, R96998, N62469, N79188, AA056180, AA079122, AA079223, AA190398, AA190542, AA279989, AA280050, AA563719, AA563967, AA621823, AA639374, AA743441, AA809943, AA903777, AA991450, AA091152
829048	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1679 of SEQ ID NO:280, b is an integer of 15 to 1693, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:280, and where b is greater than or equal to a + 14.	
829051	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 244 of SEQ ID NO:281, b is an integer of 15 to 258, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:281, and where b is greater than or equal to a + 14.	
829052	Preferably excluded from the present invention are	T54099, T54192, R42585, R42585,

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1750 of SEQ ID NO:282, b is an integer of 15 to 1764, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:282, and where b is greater than or equal to a + 14.	H30486, R83722, N24879, N34365, N36398, W80812, W80905, AA040726, AA040725, AA069816, AA099148, AA099246, AA130358, AA131274, AA143111, AA150578, AA553644, H89452, AA570403, AA985591, A1076032, AA092873
829057	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 785 of SEQ ID NO:283, b is an integer of 15 to 799, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:283, and where b is greater than or equal to a + 14.	R17092
829058	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1475 of SEQ ID NO:284, b is an integer of 15 to 1489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:284, and where b is greater than or equal to a + 14.	
829059	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 688 of SEQ ID NO:285, b is an integer of 15 to 702, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:285, and where b is greater than or equal to a + 14.	T99023, R54176, H73053, H72832, H73054, H80706, AA988806
829061	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1161 of SEQ ID NO:286, b is an integer of 15 to 1175, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:286, and where b is greater than or equal to a + 14.	
829062	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2859 of SEQ ID NO:287, b is an integer of 15 to 2873, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:287, and where b is greater than or equal to a + 14.	
829063	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2090 of SEQ ID NO:288, b is an integer of 15 to 2104, where both a and b correspond to the	T56853, R13426, R40938, R40938, R56447, H64343, W94129, W94024, W95653, W95654, AA001812, AA158586, AA158585, AA179917, AA463947, AA464082, AA421875, AA430503, AA430622.

	positions of nucleotide residues shown in SEQ ID NO:288, and where b is greater than or equal to a + 14.	AA228990, AA506167, AA528459, AA551350, AA564494, AA601544, AA604335, AA622270, AA747745, AA760947, AA827325, AA888125, AA910238
829064	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1237 of SEQ ID NO:289, b is an integer of 15 to 1251, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:289, and where b is greater than or equal to a + 14.	
829066	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1577 of SEQ ID NO:290, b is an integer of 15 to 1591, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:290, and where b is greater than or equal to a + 14.	
829068	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2372 of SEQ ID NO:291, b is an integer of 15 to 2386, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:291, and where b is greater than or equal to a + 14.	
829069	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 969 of SEQ ID NO:292, b is an integer of 15 to 983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:292, and where b is greater than or equal to a + 14.	AA056484, AA056650, AA742863
829074	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2641 of SEQ ID NO:293, b is an integer of 15 to 2655, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:293, and where b is greater than or equal to a + 14.	R21643, R21965, R23012, R31285, R31896, R32700, R32701, R34083, R62210, R64591, R68873, R73888, R73975, R74184, R74270, R76839, R77200, R77720, R78052, H03147, H03956, H15807, H16106, H39711, H39732, H42156, R98951, N41769, W87673, AA007438, AA007439, AA013075, AA099593, AA156625, AA195656, AA195769, AA236849, AA237048, AA226078, AA526030, AA570236, AA570252, AA766062, AA767497, AA769581, AA827847, AA831416, AA911414, AA938690
829077	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	R11694, AA031610, AA056352, AA099809, AA190527



	formula of a-b, where a is any integer between 1 to 1724 of SEQ ID NO:294, b is an integer of 15 to 1738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:294, and where b is greater than or equal to a + 14.	
829078	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1006 of SEQ ID NO:295, b is an integer of 15 to 1020, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:295, and where b is greater than or equal to a + 14.	
829079	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 670 of SEQ ID NO:296, b is an integer of 15 to 684, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:296, and where b is greater than or equal to a + 14.	AA613454
829085	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1824 of SEQ ID NO:297, b is an integer of 15 to 1838, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:297, and where b is greater than or equal to a + 14.	
829093	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1621 of SEQ ID NO:298, b is an integer of 15 to 1635, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:298, and where b is greater than or equal to a + 14.	T86751, N67573, AA084170, AA482701, AA513177, AA715379
829099	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 854 of SEQ ID NO:299, b is an integer of 15 to 868, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:299, and where b is greater than or equal to a + 14.	AA235899, AA524874, AA588559, AA568363, C18296
829101	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 533 of SEQ ID NO:300, b is an integer of 15 to 547, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:300, and where b is greater than or equal to a + 14.	N28457

829102	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 851 of SEQ ID NO:301, b is an integer of 15 to 865, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:301, and where b is greater than or equal to a + 14.	N24654, N35441, N72250, W00539, W44692, AA101155, AA491668, A1054009, A1054199, W38644
829103	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 801 of SEQ ID NO:302, b is an integer of 15 to 815, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:302, and where b is greater than or equal to a + 14.	R34801, N36324, D81161, D81435, C15688, C15742
829104	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1905 of SEQ ID NO:303, b is an integer of 15 to 1919, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:303, and where b is greater than or equal to a + 14.	R08917, R09023, T95465, R07005, R19551, R37796, R43901, R43901, R65802, R65897, R77267, R77316, R82856, R82857, H15156, H15216, R93133, H77582, H77583, N45210, N50021, N55569, N58316, N59861, N59869, N76954, N77681, N93112, W38788, W52631, AA011659, AA011707, AA043405, AA133302, AA133248, AA134238, AA134239, AA150954, AA151044, AA459974, AA460066, AA503364, AA522740, AA522866, AA523791, AA602932, AA602716, AA876807, AA877039, AA879223, AA923007, AA935208, A1082642, A1094830
829109	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 143 of SEQ ID NO:304, b is an integer of 15 to 157, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:304, and where b is greater than or equal to a + 14.	
829111	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 329 of SEQ ID NO:305, b is an integer of 15 to 343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:305, and where b is greater than or equal to a + 14.	
829115	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 682 of SEQ ID NO:306, b is an integer of 15 to 696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:306, and where b is greater than or equal to a + 14.	AA064674, AA078775
829116	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 382 of SEQ ID NO:307, b is an integer of 15 to 396, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:307, and where b is greater than or equal to a + 14.	
829119	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 535 of SEQ ID NO:308, b is an integer of 15 to 549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:308, and where b is greater than or equal to a + 14.	T51849, T51895, R31503, H89196, W94076, AA233517, AA557320, AA582238, AA604556, AA659141
829120	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1764 of SEQ ID NO:309, b is an integer of 15 to 1778, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:309, and where b is greater than or equal to a + 14.	
829121	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 757 of SEQ ID NO:310, b is an integer of 15 to 771, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:310, and where b is greater than or equal to a + 14.	T79424, T86294, T98674, R00295, R41707, R42706, R45491, R46655, R41707, R42706, R45491, R46655, R56768, R71860, R71861, H17970, N55536, N80100, W46264, W46265, W46263, W72406, W73710, W76436, AA133997, AA470389, AA514398, AA524707, AA536170, F15823, AA731228, AA766110, AA825368, AA828215, AA833768, AA837103, AA918015, AA988068, AA999844, W46262, C04804, AA062584, AA082539
829123	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1405 of SEQ ID NO:311, b is an integer of 15 to 1419, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:311, and where b is greater than or equal to a + 14.	T53735, T53833, T73419, T79418, T79419, AA035245, AA530898, AA588281, AA631068, C01039
829126	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 512 of SEQ ID NO:312, b is an integer of 15 to 526, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:312, and where b is greater than or equal to a + 14.	
829135	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 2421 of SEQ ID NO:313, b is an integer of 15 to 2435, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:313, and where b is greater than or equal to a + 14.	
829136	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2529 of SEQ ID NO:314, b is an integer of 15 to 2543, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:314, and where b is greater than or equal to a + 14.	N24451, N54675, AA135096, AA164383, AA180531, AA180520, AA179618, AA180509, C17250
829138	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 814 of SEQ ID NO:315, b is an integer of 15 to 828, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:315, and where b is greater than or equal to a + 14.	T57569, T86491, R00162, R00163, R91950, R92281, R93566, R93567, R98556, R98557, H82687, N23234, N23249, N27394, N40804, N52001, N54610, N62258, N69979, N79347, N98581, N98559, W24241, W30694, W39016, W49542, W49773, W93332, W95036, N90230, AA015762, AA022871, AA022872, AA151308, AA151309, AA203551, AA461104, AA424178, AA424202, AA467853, AA467908, AA513455, AA564159, AA576516, AA579461, AA740779, AA865373, AA938596, AA972781, AA641536, AA092083
829142	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1594 of SEQ ID NO:316, b is an integer of 15 to 1608, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:316, and where b is greater than or equal to a + 14.	
829148	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1043 of SEQ ID NO:317, b is an integer of 15 to 1057, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:317, and where b is greater than or equal to a + 14.	T70817, H97087, N28699, N59032, W31740, W63702
829149	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1322 of SEQ ID NO:318, b is an integer of 15 to 1336, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:318, and where b is greater than or equal to a + 14.	T57875, AA062633, AA180493, AA255651, AA815168, AA827196, AA988896, A1032193

	14.	
829156	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 482 of SEQ ID NO:319, b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:319, and where b is greater than or equal to a + 14.	
829162	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1742 of SEQ ID NO:320, b is an integer of 15 to 1756, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:320, and where b is greater than or equal to a + 14.	W28213, C20991
829170	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 574 of SEQ ID NO:321, b is an integer of 15 to 588, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:321, and where b is greater than or equal to a + 14.	T54688
829177	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 724 of SEQ ID NO:322, b is an integer of 15 to 738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:322, and where b is greater than or equal to a + 14.	
829179	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 862 of SEQ ID NO:323, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:323, and where b is greater than or equal to a + 14.	
829184	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1308 of SEQ ID NO:324, b is an integer of 15 to 1322, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:324, and where b is greater than or equal to a + 14.	
829185	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 328 of SEQ ID NO:325, b is an integer of 15 to 342, where both a and b correspond to the positions	

	of nucleotide residues shown in SEQ ID NO:325, and where b is greater than or equal to a + 14.	
829188	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3676 of SEQ ID NO:326, b is an integer of 15 to 3690, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:326, and where b is greater than or equal to a + 14.	T58653, T58703, T75221, T77245, T77461, R09770, R10874, R10923, T78618, R05603, R12362, R13912, R23445, R26046, R37744, R39442, R43682, R44004, R43682, R44004, H27016, H50941, H51605, H52497, N23353, N28825, N35021, N45029, N52865, N93751, N94155, W67224, W67334, W78117, W79824, W94552, W92625, AA036842, AA040393, AA040497, AA074284, AA075940, AA135258, AA157449, AA159938, AA188822, AA188883, AA223533, AA280881, AA280961, AA515694, AA573708, AA720966, AA730134, AA761564, AA805432, AA826208, AA831736, AA833940, AA834312, AA888244, AA911536, AA918643, AA922815, AA932119, AA933022
829190	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 705 of SEQ ID NO:327, b is an integer of 15 to 719, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:327, and where b is greater than or equal to a + 14.	
829193	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 975 of SEQ ID NO:328, b is an integer of 15 to 989, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:328, and where b is greater than or equal to a + 14.	AA043829
829196	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 420 of SEQ ID NO:329, b is an integer of 15 to 434, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:329, and where b is greater than or equal to a + 14.	AA156138
829197	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 682 of SEQ ID NO:330, b is an integer of 15 to 696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:330, and where b is greater than or equal to a + 14.	R13055
829202	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 527 of SEQ ID NO:331, b is an integer of 15 to 541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:331, and where b is greater than or equal to a + 14.	
829203	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 291 of SEQ ID NO:332, b is an integer of 15 to 305, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:332, and where b is greater than or equal to a + 14.	
829209	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 431 of SEQ ID NO:333, b is an integer of 15 to 445, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:333, and where b is greater than or equal to a + 14.	H96926
829210	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 303 of SEQ ID NO:334, b is an integer of 15 to 317, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:334, and where b is greater than or equal to a + 14.	
829214	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1510 of SEQ ID NO:335, b is an integer of 15 to 1524, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:335, and where b is greater than or equal to a + 14.	T65464, T65607, T65616, R68318, R81279, H19079, H21595, W38816, AA173621, AA195611, AA461025, AA429991, AA281779, AA523034
829215	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 292 of SEQ ID NO:336, b is an integer of 15 to 306, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:336, and where b is greater than or equal to a + 14.	
829219	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 277 of SEQ ID NO:337, b is an integer of 15 to 291, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:337, and where b is greater than or equal to a + 14.	
829220	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T91056, R08770, R10337, T85922, R08771, N30353, N33349, N34024, N36835, N43012, N46055, N46938.

	formula of a-b, where a is any integer between 1 to 1250 of SEQ ID NO:338, b is an integer of 15 to 1264, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:338, and where b is greater than or equal to a + 14.	N47028, N48163, N53309, N55453, N57768, N59733, N62846, N70614, N76825, N77753, W04936, W46253, W57556, W80670, W88648, AA081410, AA233146, AA251750, AA485043, AA554001, AA628055, AA632073, AA632104, AA576915, AA814024, AA829780, AA887202, AA902514, AA927412, A1056152, A1085313, A1084094
829222	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 745 of SEQ ID NO:339, b is an integer of 15 to 759, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:339, and where b is greater than or equal to a + 14.	T53949, T55484, T55410, N57462, N93015, W21365, W88723, AA025365, AA081355, AA081356, AA418410, AA418507, AA422027, AA593855, AA593915, AA639807, AA814928, AA833745, AA872346, AA887280, AA904054, AA090282
829223	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2625 of SEQ ID NO:340, b is an integer of 15 to 2639, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:340, and where b is greater than or equal to a + 14.	T39922, N73780, N74186, N99401, W49823, AA026960, AA028073, AA418303, AA418345, AA425606, AA425545, AA426176, AA279347, AA492172, AA587366, AA621961, AA621973, AA834751, AA641513
829225	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1810 of SEQ ID NO:341, b is an integer of 15 to 1824, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:341, and where b is greater than or equal to a + 14.	T64318, T65668, AA016241, AA173963, AA618544
829226	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4517 of SEQ ID NO:342, b is an integer of 15 to 4531, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:342, and where b is greater than or equal to a + 14.	R17300, R31023, R61393, R61438, R61703, R61704, R72584, R72589, R74189, R74276, R78679, H20944, H22649, H39794, R84924, H79108, H79109, H81746, H81747, N32103, N38733, N45414, N47287, N47868, N48370, N48604, N50820, N51222, W19758, W38435, W44825, W74326, AA031730, AA045438, AA046531, AA047110, AA047266, AA148821, AA150421, AA169649, AA169829, AA169806, AA169813, AA171644, AA171651, AA227734, AA228119, AA255720, AA258153, AA424351, AA424866, AA426160, AA281120, AA281932, AA594385, AA594783, AA627918, AA570350, AA744689, AA748507, AA805709, AA806075, AA805170, AA865268, AA872935, AA876562, AA911965, AA916659, AA917349, AA918770.



		AA918850. AA946925. D81172. D81397. D78876. C01437. N86700. N88264. C05670. C18759
829227	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 570 of SEQ ID NO:343. b is an integer of 15 to 584, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:343, and where b is greater than or equal to a + 14.	T47087. T47086. R44450. R44450. H13259. H95459. AA035630. AA179511. AA418751. AA527136. AA961714. AA992449
829231	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 764 of SEQ ID NO:344. b is an integer of 15 to 778, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:344, and where b is greater than or equal to a + 14.	
829232	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3726 of SEQ ID NO:345. b is an integer of 15 to 3740, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:345, and where b is greater than or equal to a + 14.	N26050. N40415. N41638. AA001329. AA001916. AA158802. AA158803. AA213393. AA213394. AA213538. AA424282. AA459213. AA482209. AA482297. AA580754. AA729270. AA737966. AA742269. AA804199. AA937087. N33467. N43860. C02233
829233	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 432 of SEQ ID NO:346. b is an integer of 15 to 446, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:346, and where b is greater than or equal to a + 14.	
829239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 768 of SEQ ID NO:347. b is an integer of 15 to 782, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:347, and where b is greater than or equal to a + 14.	
829240	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 425 of SEQ ID NO:348. b is an integer of 15 to 439, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:348, and where b is greater than or equal to a + 14.	
829242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2342 of SEQ ID NO:349. b is an integer of 15 to	T91514. T91542. T94168. T78752. R14281. R31952. R32000. R37970. R37971. R39326. R40572. R40572. R55803. R55886. R66639. R81490. R81731. H53614. H53652. H87392.

	2356. where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:349. and where b is greater than or equal to a + 14.	H97030. N26679. N35814. N39832. N64783. N76195. N92867. N95188. W21546. W25593. W61031. W78096. W79455. AA022610. AA022611. AA034251. AA063637. AA102635. AA102677. AA171440. AA190925. AA191317. AA223281. AA223381. AA226876. AA227079. AA460842. AA461146. AA428884. AA429051. AA429588. AA430105. AA526857. AA534144. AA542854. AA542868. AA554978. AA582495. AA605088. AA614111. AA614129. AA635924. AA580535. AA732502. AA740954. AA812350. AA827279. AA857515. AA928973. AA985646. AA995666. AI015556. U47719. N85053. C02475. C14936. C20619
829246	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1205 of SEQ ID NO:350, b is an integer of 15 to 1219, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:350, and where b is greater than or equal to a + 14.	
829250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 394 of SEQ ID NO:351, b is an integer of 15 to 408, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:351, and where b is greater than or equal to a + 14.	
829253	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1269 of SEQ ID NO:352, b is an integer of 15 to 1283, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:352, and where b is greater than or equal to a + 14.	
829256	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3215 of SEQ ID NO:353, b is an integer of 15 to 3229, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:353, and where b is greater than or equal to a + 14.	R17284, R17354, R17854, R24590, R33671, R33788, R35944, R36246, R36247, R36926, R43105, R44395, R49460, R49460, R44395, R43105, H24440, H24469, H82721, H83591, N50755, N55574, N64383, N92180, N90817, AA019697, AA026244, AA026441, AA037458, AA037544, AA127492, AA127587, AA190907, AA243225, AA243269, AA279209, AA503849, AA507466, AA639522, AA731780, AA736864, AA766007, AA090592

829263	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 492 of SEQ ID NO:354, b is an integer of 15 to 506, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:354, and where b is greater than or equal to a + 14.	N41747
829266	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 728 of SEQ ID NO:355, b is an integer of 15 to 742, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:355, and where b is greater than or equal to a + 14.	
829271	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1681 of SEQ ID NO:356, b is an integer of 15 to 1695, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:356, and where b is greater than or equal to a + 14.	T39261, T49204, T72303, T71643, R07380, T66682, T82066, T83481, R01790, R16223, R20708, R81714, H06087, H09039, H46863, R96294, H50808, H84189, H84190, H84400, H91054, H91348, H96283, N32070, N39797, N45073, N45382, W04773, W21170, W52394, W51822, AA017710, AA017711, AA019476, AA021323, AA021324, AA044865, AA045153, AA054523, AA081533, AA083253, AA084388, AA083588, AA101641, AA101642, AA101720, AA135652, AA136639, AA136846, AA151892, AA179772, AA180489, AA187824, AA188556, AA224078, AA232050, AA232154, AA425968, AA531528, AA581305, AA742833, D83801, D83850, W22420
829273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 914 of SEQ ID NO:357, b is an integer of 15 to 928, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:357, and where b is greater than or equal to a + 14.	
829274	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1360 of SEQ ID NO:358, b is an integer of 15 to 1374, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:358, and where b is greater than or equal to a + 14.	
829276	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	4138 of SEQ ID NO:359, b is an integer of 15 to 4152, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:359, and where b is greater than or equal to a + 14.	
829279	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1142 of SEQ ID NO:360, b is an integer of 15 to 1156, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:360, and where b is greater than or equal to a + 14.	
829280	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 362 of SEQ ID NO:361, b is an integer of 15 to 376, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:361, and where b is greater than or equal to a + 14.	
829283	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 505 of SEQ ID NO:362, b is an integer of 15 to 519, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:362, and where b is greater than or equal to a + 14.	
829284	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1371 of SEQ ID NO:363, b is an integer of 15 to 1385, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:363, and where b is greater than or equal to a + 14.	R35022, N53092, W56437, AA425107, AA429328, AA639462
829285	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 963 of SEQ ID NO:364, b is an integer of 15 to 977, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:364, and where b is greater than or equal to a + 14.	T98355, N35799, N68373, AA233837, AA234338, AA541363, C05871, C06442
829287	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 950 of SEQ ID NO:365, b is an integer of 15 to 964, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:365, and where b is greater than or equal to a + 14.	T75573, T75574, T89291, T92020, T92115, R09394, R09395, T81925, T81926, T84370, H15008, H15009, H22443, H22477, H42624, H70914, H70998, H91740, H70914, N21387, N21568, N29475, N31342, N35714, N39243, N46687, N58940, N62219, N62544, N71355, N73001, N79212, N79311, N80035, N92595, N95523, N99823, W02965, W06998.

		W17066, W17239, W37312, W37553, W38873, W38985, W42735, W42825, W44743, W45210, W60642, W60643, W61216, W72457, W73365, W73442, W73919, W74445, W78073, W94432, W92526, W95225, N89652, N89752, AA034453, AA046851, AA046813, AA053964, AA055047, AA055127, AA074513, AA081359, AA084042, AA098833, AA112180, AA136464, AA165072, AA164675, AA190836, AA255622, AA256734, AA428625, AA484049, AA513283, AA535853, F16222, AA587936, AA614830, AA767121, AA814435, AA832516, AA829611, AA829918, AA872922, AA910970, AA987945, AA988657, AA948052, A1094757, D79222, D79845, W79251, C00060
829295	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1283 of SEQ ID NO:366, b is an integer of 15 to 1297, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:366, and where b is greater than or equal to a + 14.	N79069, N94383, AA046494, AA046766, AA101963, AA099652, AA135109, AA135264, AA148582, AA148581, AA150460, AA156662, AA534768, AA557811, AA687147, AA730106, AA810732, AA911850
829296	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 771 of SEQ ID NO:367, b is an integer of 15 to 785, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:367, and where b is greater than or equal to a + 14.	
829297	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 906 of SEQ ID NO:368, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:368, and where b is greater than or equal to a + 14.	H63163, H69239, AA291944, AA827871, AA995955
829298	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 820 of SEQ ID NO:369, b is an integer of 15 to 834, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:369, and where b is greater than or equal to a + 14.	T85571, T85572, T98605, R06410, R06411, R72558, W25247, W58681, AA126722, AA137218, AA136191, AA531469, AA565025, AA948354, AA978354, AA988766, A1057145, N95214
829302	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T65369, R16190, R51781, H70499, AA203397

	formula of a-b, where a is any integer between 1 to 933 of SEQ ID NO:370, b is an integer of 15 to 947, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:370, and where b is greater than or equal to a + 14.	
829304	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2326 of SEQ ID NO:371, b is an integer of 15 to 2340, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:371, and where b is greater than or equal to a + 14.	
829320	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1561 of SEQ ID NO:372, b is an integer of 15 to 1575, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:372, and where b is greater than or equal to a + 14.	T83172, T83188, T98062, H14392, AA196911, AA514594
829322	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1864 of SEQ ID NO:373, b is an integer of 15 to 1878, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:373, and where b is greater than or equal to a + 14.	
829355	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 832 of SEQ ID NO:374, b is an integer of 15 to 846, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:374, and where b is greater than or equal to a + 14.	
829364	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 643 of SEQ ID NO:375, b is an integer of 15 to 657, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:375, and where b is greater than or equal to a + 14.	R10800, H79360, AA130522
829919	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 681 of SEQ ID NO:376, b is an integer of 15 to 695, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:376, and where b is greater than or equal to a + 14.	
829941	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3596 of SEQ ID NO:377, b is an integer of 15 to 3610, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:377, and where b is greater than or equal to a + 14.	
829945	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 209 of SEQ ID NO:378, b is an integer of 15 to 223, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:378, and where b is greater than or equal to a + 14.	
829946	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 795 of SEQ ID NO:379, b is an integer of 15 to 809, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:379, and where b is greater than or equal to a + 14.	AA288019, AA502347, AA904261
829947	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2536 of SEQ ID NO:380, b is an integer of 15 to 2550, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:380, and where b is greater than or equal to a + 14.	T66737, T66738, T74003, T77189, T80326, R13808, R14624, R15371, R16290, R19838, R21469, R24972, R37667, R38092, R39443, R39761, R40215, R40379, R42113, R45233, R42113, R42856, R40215, R40379, R45233, R45937, R56287, R59950, R59951, R60203, R60436, H09760, H09845, H10702, H10703, H19185, H29333, H29426, N94574, W30864, W45066, W45179, W47249, W47622, W47621, W73903, W74765, W95498, W95585, AA039360, AA039359, AA043667, AA057482, AA083653, AA088919, AA131592, AA135473, AA135544, AA147364, AA147416, AA161437, AA164913, AA165378, AA164333, AA181099, AA430483, AA281878, AA291947, AA493956, AA582300, AA740445, AA743497, AA875945, AA878761, AA923149, AA931525, AA931950, AA935699, AA947521, AA962775, AA977566, AA984017, AA988746, AI095060, D82399, W25818, W51914, C15840
829952	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1254 of SEQ ID NO:381, b is an integer of 15 to 1268, where both a and b correspond to the	R17678, R26888, R27120, R35870, R35871, R51276, R66882, R67967, H27381, H28345, H38579, R93605, R97908, R97907, H53653, H61431, H61432, H62657, H63776, H63826, H65287, H65810, H89508, H89654,

	positions of nucleotide residues shown in SEQ ID NO:381, and where b is greater than or equal to a + 14.	N74909, W23437, AA026270, AA026558, AA177150, AA515407, AA527495, AA535324, AA594129, AA568558, AA864390, AA999878, A1014459, A1017407, A1017824
829954	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 840 of SEQ ID NO:382, b is an integer of 15 to 854, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:382, and where b is greater than or equal to a + 14.	
829955	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1077 of SEQ ID NO:383, b is an integer of 15 to 1091, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:383, and where b is greater than or equal to a + 14.	T47229, T47230, R02311, R43154, R51528, R43154, H42209, R88215, N49583, N93033, W21271, W31966, AA029149, AA513795, AA548358, AA612791, AA633375, AA830042, AA917951, N83314, N86243, C02678
829957	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1015 of SEQ ID NO:384, b is an integer of 15 to 1029, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:384, and where b is greater than or equal to a + 14.	T39589, T40683, H47643, R92700, R99102, R99644, H53816, H58333, H58722, H61989, H61990, H63765, H63809, H73313, H73501, N38910, N46484, N66604, N69475, N75847, W01771, W07430, W74706, W74743, W87451, W87550, N90967, AA010671, AA011259, AA026367, AA026459, AA063538, AA133609, AA157688, AA157767, AA252640, AA262927, AA417991, AA418050, AA425054, AA429232, AA505081, AA602637, AA569939, AA688193, AA714567, AA715109, AA721733, AA761769, AA824602, AA829416, AA910995, AA932302, AA934664, AA960927, AA973923, A1002231, A1094664
829958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 569 of SEQ ID NO:385, b is an integer of 15 to 583, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:385, and where b is greater than or equal to a + 14.	W31195, W38586, N90200, AA045674, AA045675, AA064826, AA064769, AA082177, AA129757, AA133252, AA187005, AA188378, AA226394, AA491262, AA523135, AA527421, AA527902, AA533279, AA554691, AA632078, AA721457, AA743821, AA760765, AA766192, AA769476, AA805805, AA815094, AA826696, AA873340, AA876652, AA902562, AA935370, AA091473
829960	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2396 of SEQ ID NO:386, b is an integer of 15 to 2410, where both a and b correspond to the	T87492, T89410, T89773, T80188, T83347, T83577, T85604, T86095, H44324, R86738, R86745, R87175, R87176, R93579, R97628, H59234, H67776, H69384, H89665, H90369, H91278, H93827, N59685, N73235



	positions of nucleotide residues shown in SEQ ID NO:386, and where b is greater than or equal to a + 14.	N77230, N99493, W01516, W07398, W07499, AA011532, AA127663, AA127842, AA127871, AA131770, AA131783, AA203697, AA223149, AA657524, AA770678, AA828971, AA937743
829966	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 675 of SEQ ID NO:387, b is an integer of 15 to 689, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:387, and where b is greater than or equal to a + 14.	T94747, T91932, R10556, T95267, T95268, H90557, N59601, W02671, W03166, AA523419
829967	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 784 of SEQ ID NO:388, b is an integer of 15 to 798, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:388, and where b is greater than or equal to a + 14.	T66815, T66816, T90190, R07384, T81628, T81788, T82103, T83000, R23462, R25324, R26060, R31477, R31478, R66771, R80777, R80976, H13673, H13721, R98517, H92094, H94096, H94097, N30791, N31967, N32621, N41566, N47840, N57286, N75841, W07482, W16880, W46399, W46507, W72152, W77912, AA040326, AA040305, AA147001, AA147002, AA176399, AA178863, AA188782, AA188633, AA502400, AA503270, AA508898, AA515395, AA557399, AA610193, AA714481, AA740261, AA748847, AA760659, AA766512, AA824416, AA877577, AA910372, AA938717, A1018625, A1056489, N92492, A1084101, AA642564
829970	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1677 of SEQ ID NO:389, b is an integer of 15 to 1691, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:389, and where b is greater than or equal to a + 14.	W57592, AA253247
829981	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 440 of SEQ ID NO:390, b is an integer of 15 to 454, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:390, and where b is greater than or equal to a + 14.	N44941
829985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 793 of SEQ ID NO:391, b is an integer of 15 to 807, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:391.	T58690, H10115, AA101544, AA171779, AA173847

	and where b is greater than or equal to a + 14.	
829986	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 913 of SEQ ID NO:392, b is an integer of 15 to 927, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:392, and where b is greater than or equal to a + 14.	R72689, H39575, AA516440, AA662417
829988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1009 of SEQ ID NO:393, b is an integer of 15 to 1023, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:393, and where b is greater than or equal to a + 14.	
829990	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 808 of SEQ ID NO:394, b is an integer of 15 to 822, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:394, and where b is greater than or equal to a + 14.	
829991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1688 of SEQ ID NO:395, b is an integer of 15 to 1702, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:395, and where b is greater than or equal to a + 14.	N22386, AA461107, AA493109, AA932044, AA976154, AA995814
829992	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 844 of SEQ ID NO:396, b is an integer of 15 to 858, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:396, and where b is greater than or equal to a + 14.	W44338, W44452, AA600841, AA577032, AA936480, AA973451
829993	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1096 of SEQ ID NO:397, b is an integer of 15 to 1110, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:397, and where b is greater than or equal to a + 14.	
829998	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 850 of SEQ ID NO:398, b is an integer of 15 to	R12950, R56786, H09888, H91803

	864, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:398, and where b is greater than or equal to a + 14.	
829999	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 257 of SEQ ID NO:399, b is an integer of 15 to 271, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:399, and where b is greater than or equal to a + 14.	
830000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 911 of SEQ ID NO:400, b is an integer of 15 to 925, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:400, and where b is greater than or equal to a + 14.	
830001	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1071 of SEQ ID NO:401, b is an integer of 15 to 1085, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:401, and where b is greater than or equal to a + 14.	
830005	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 334 of SEQ ID NO:402, b is an integer of 15 to 348, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:402, and where b is greater than or equal to a + 14.	
830009	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1456 of SEQ ID NO:403, b is an integer of 15 to 1470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:403, and where b is greater than or equal to a + 14.	
830010	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2473 of SEQ ID NO:404, b is an integer of 15 to 2487, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:404, and where b is greater than or equal to a + 14.	
830127	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T80487, R61657

	formula of a-b, where a is any integer between 1 to 1242 of SEQ ID NO:405, b is an integer of 15 to 1256, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:405, and where b is greater than or equal to a + 14.	
830128	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 757 of SEQ ID NO:406, b is an integer of 15 to 771, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:406, and where b is greater than or equal to a + 14.	
830129	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2629 of SEQ ID NO:407, b is an integer of 15 to 2643, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:407, and where b is greater than or equal to a + 14.	T53792, T53907, T53943, T62085, T62142, R20454, R78770, R78927, R79027, R79077, H98608, N48338, N49063, W01400, W52282, W57571, AA035258, AA035470, AA101541, AA114162, AA121802, AA129334, AA129628, AA130575, AA130988, AA131026, AA156750, AA156922, AA157263, AA157360, AA223729, AA223816, AA489148, AA490861, AA516421, AA526784, AA533164, AA535426, AA552972, AA583471, AA605156, AA575994, AA747160, AA804291, AA887994, AA937881, AA948245, AA974518, AA974784, A1002302, A1051153, N84559, N86782, AA642578, AA093419
830137	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1632 of SEQ ID NO:408, b is an integer of 15 to 1646, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:408, and where b is greater than or equal to a + 14.	
830140	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 862 of SEQ ID NO:409, b is an integer of 15 to 876, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:409, and where b is greater than or equal to a + 14.	
830157	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1836 of SEQ ID NO:410, b is an integer of 15 to 1850, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:410, and where b is greater than or equal to a +	

	14.	
830195	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 647 of SEQ ID NO:411, b is an integer of 15 to 661, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:411, and where b is greater than or equal to a + 14.	
830196	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1249 of SEQ ID NO:412, b is an integer of 15 to 1263, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:412, and where b is greater than or equal to a + 14.	T47007, T47008, T59996, T63678, T72979, T73043, R20327, R34736, H18043, H69946, H98876, W79567, AA069850, AA070319, AA074422, AA076309, AA081601, AA101958, AA113902, AA126400, AA134002, AA134658, AA134640, AA135254, AA146731, AA155584, AA157966, AA159110, AA159386, AA159466, AA160637, AA179462, AA182917, AA182648, AA190534, AA220918, AA223557, AA227300, AA232517, AA233585, AA932527, N83710, N85080, W28216, W28475, W28650, AA090479
830409	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1323 of SEQ ID NO:413, b is an integer of 15 to 1337, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:413, and where b is greater than or equal to a + 14.	
830417	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 778 of SEQ ID NO:414, b is an integer of 15 to 792, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:414, and where b is greater than or equal to a + 14.	T70867, R12290, T78032, T80453, T80532, R12432, R12507, R18857, R23505, R51536, R52975, R53640, H12996, H22829, H63914, H64034, H71775, H85810, H97709, N42249, W39175, AA018531, AA018491, AA018481, AA052919, AA079678, AA083267, AA102444, AA127022, AA147778, AA226551, AA994837, N84172, W95500, C02827, C04397, AA090040
830531	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1328 of SEQ ID NO:415, b is an integer of 15 to 1342, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:415, and where b is greater than or equal to a + 14.	
830677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	1099 of SEQ ID NO:416. b is an integer of 15 to 1113, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:416, and where b is greater than or equal to a + 14.	
831355	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1160 of SEQ ID NO:417, b is an integer of 15 to 1174, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:417, and where b is greater than or equal to a + 14.	
831420	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 659 of SEQ ID NO:418, b is an integer of 15 to 673, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:418, and where b is greater than or equal to a + 14.	
831702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2164 of SEQ ID NO:419, b is an integer of 15 to 2178, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:419, and where b is greater than or equal to a + 14.	
831717	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1870 of SEQ ID NO:420, b is an integer of 15 to 1884, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:420, and where b is greater than or equal to a + 14.	
832488	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 608 of SEQ ID NO:421, b is an integer of 15 to 622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:421, and where b is greater than or equal to a + 14.	
833207	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1271 of SEQ ID NO:422, b is an integer of 15 to 1285, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:422, and where b is greater than or equal to a + 14.	

835940	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 514 of SEQ ID NO:423, b is an integer of 15 to 528, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:423, and where b is greater than or equal to a + 14.	
836953	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3104 of SEQ ID NO:424, b is an integer of 15 to 3118, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:424, and where b is greater than or equal to a + 14.	
837105	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1396 of SEQ ID NO:425, b is an integer of 15 to 1410, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:425, and where b is greater than or equal to a + 14.	
837300	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1408 of SEQ ID NO:426, b is an integer of 15 to 1422, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:426, and where b is greater than or equal to a + 14.	R22778, H06717, H18453, H26987, H26988, N33207, N44745, W57874, W58145, AA040435, AA278615, AA507344, AA558666, AA578863, AA872443, AA877052, AA877120, AA879047, AA887537, AA910397, AA931214, A1025125, AA040434
837373	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 816 of SEQ ID NO:427, b is an integer of 15 to 830, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:427, and where b is greater than or equal to a + 14.	R21137, H67522, AA081145, AA082099, AA082371, AA130000, AA130415, AA130417, AA132638, AA136918, AA147401, AA157404, AA186519, AA186340, AA186565, AA190900, AA191038, AA190612, AA224065, AA469308, AA514706, AA640391, AA659609, AA814425, AA932379, AA961224, AA974800, AA977316, A1002396, N83374, N83520, N83658, N83770, N85953, N85954, N86486, N86566, N86680, N87938, N88164, N89316, C14148, C14189, AA095113, AA206109
837687	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1608 of SEQ ID NO:428, b is an integer of 15 to 1622, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:428, and where b is greater than or equal to a +	

	14.	
837991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 534 of SEQ ID NO:429, b is an integer of 15 to 548, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:429, and where b is greater than or equal to a + 14.	
838442	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 555 of SEQ ID NO:430, b is an integer of 15 to 569, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:430, and where b is greater than or equal to a + 14.	
840541	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 535 of SEQ ID NO:431, b is an integer of 15 to 549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:431, and where b is greater than or equal to a + 14.	AA205009, AA471299
840543	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1207 of SEQ ID NO:432, b is an integer of 15 to 1221, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:432, and where b is greater than or equal to a + 14.	
840550	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1101 of SEQ ID NO:433, b is an integer of 15 to 1115, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:433, and where b is greater than or equal to a + 14.	T53643, T53644, R67842, R67843, R79329, H12321, H40510, R83261, R88722, R90978, R97638, H51690, H52190, H78699, H89714, N58070, N69832, N98971, AA251228, AA251227, AA282101, AA513006, AA528240, AA558167, AA593383, AA574200, AA577197, AA765822, AA847143, AA863087, AA931049, AA694054
840563	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1590 of SEQ ID NO:434, b is an integer of 15 to 1604, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:434, and where b is greater than or equal to a + 14.	R38732, R71612, R71613, N24083, N31377, N47304, N48623, W87303, W90742, W90798, AA011634, AA011635, AA253397, AA253501, AA257091, AA257121, AA427877, AA503469, AA565303, AA587449, AA613721, AA740312, C01498, AA434535, AA443422, AA454584, AA677081, A1022365, A1052631, AA693545
840565	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	



	formula of a-b, where a is any integer between 1 to 287 of SEQ ID NO:435, b is an integer of 15 to 301, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:435, and where b is greater than or equal to a + 14.	
840569	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 304 of SEQ ID NO:436, b is an integer of 15 to 318, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:436, and where b is greater than or equal to a + 14.	
840570	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1868 of SEQ ID NO:437, b is an integer of 15 to 1882, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:437, and where b is greater than or equal to a + 14.	AI075277, AA675912, AA675911
840571	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2042 of SEQ ID NO:438, b is an integer of 15 to 2056, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:438, and where b is greater than or equal to a + 14.	T47828, T47852, T64841, T65430, T65510, T72584, R17181, R19667, R34515, R41731, R44453, R49058, R50770, R51812, R41731, R49058, R44453, H11004, H15433, H15488, H28705, H28834, AA515873, AA687085, AA863313, AA903803, AA452278, AA452447, AA781246, AA972396, AA993822, AI002821, T10761, D25941, Z41977, Z40833, Z44675, F01498, F03695, F07749, F11901, F12192, F09548, F09821
840573	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 707 of SEQ ID NO:439, b is an integer of 15 to 721, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:439, and where b is greater than or equal to a + 14.	AA149788
840574	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1027 of SEQ ID NO:440, b is an integer of 15 to 1041, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:440, and where b is greater than or equal to a + 14.	T65588, R40688, R42248, R53793, R53794, R42248, R20733, R40688, R66541, R68438, R68439, R77228, R77229, R77595, H18969, H20988, H21032, H49673, H50064, N72287, N80600, W07440, W40167, AA034401, AA035044, AA035506, AA035555, AA182662, AA182740, AA483608, AA588302, AA602357, AA604612, AA639138, D81410, D81461, D81692, AI097583, C15094, AA404494, AA705982, AI080676, AI095724, F09676
840575	Preferably excluded from the present invention are one or more polynucleotides comprising a	W68038, W93774

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1981 of SEQ ID NO:441, b is an integer of 15 to 1995, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:441, and where b is greater than or equal to a + 14.	
840579	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1709 of SEQ ID NO:442, b is an integer of 15 to 1723, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:442, and where b is greater than or equal to a + 14.	R25715, R72972, N42280, N99672, AA046377, AA112337, AA137170, AA156083, AA156289, AA234550, AA236661, AA251743, AA256954, AA256645, AA704119, A1073518, AA773818
840580	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1885 of SEQ ID NO:443, b is an integer of 15 to 1899, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:443, and where b is greater than or equal to a + 14.	
840581	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 416 of SEQ ID NO:444, b is an integer of 15 to 430, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:444, and where b is greater than or equal to a + 14.	
840605	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2139 of SEQ ID NO:445, b is an integer of 15 to 2153, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:445, and where b is greater than or equal to a + 14.	T58718, R60700, R60701, H30380, H30430, N42386, AA126493, AA126620, AA128024, AA128067, AA236455, AA234073, AA470382, AA503709, AA635761, AA573225, AA573330, AA659473, AA807615, AA824445, AA825364, AA888670, AA931858, AA935053, AA968889, AA971410, AA973830, AA974807, AA977019, AA991272, AA975535, C02768, AA094041, AA478779, AA478898, AA487854, AA777751, AA845416, AA969094, A1027197, A1027391, A1093994, A1094088, T24618, T25054, Z41574
840607	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 478 of SEQ ID NO:446, b is an integer of 15 to 492, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:446, and where b is greater than or equal to a + 14.	
840609	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1525 of SEQ ID NO:447, b is an integer of 15 to 1539, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:447, and where b is greater than or equal to a + 14.	
840610	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3969 of SEQ ID NO:448, b is an integer of 15 to 3983, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:448, and where b is greater than or equal to a + 14.	
840611	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1163 of SEQ ID NO:449, b is an integer of 15 to 1177, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:449, and where b is greater than or equal to a + 14.	
840612	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2414 of SEQ ID NO:450, b is an integer of 15 to 2428, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:450, and where b is greater than or equal to a + 14.	
840615	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2471 of SEQ ID NO:451, b is an integer of 15 to 2485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:451, and where b is greater than or equal to a + 14.	T65122, T65191, R32009, R32056, R69507, R70398, H06201, R94284, R94634, H51636, H92705, H99325, N24056, N26430, N35932, N39594, N46740, N70376, W88440, AA017294, AA115093, AA115094, AA171679, AA173604, AA173857, AA233061, AA243856, AA279997, AA419480, AA419595, AA536095, AA583207, AA588657, AA604241, AA639870, AA713580, AA714906, AA730848, AA741161, AA832122, AA879136, AA903032, AA938350, AA948280, AA976706, W05017, AA171795, AA401642, AA405839, AA411823, AA628174, AA725876, AA725882, AA833521, AA954549, AA992844, AI014611, AI018081, AI024440, AI025063, AI049677, AI085041, AI090013, AI091784, F11915, F09562, AA699825
840622	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 949 of SEQ ID NO:452, b is an integer of 15 to 963, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:452, and where b is greater than or equal to a + 14.	
840623	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 590 of SEQ ID NO:453, b is an integer of 15 to 604, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:453, and where b is greater than or equal to a + 14.	AA248685
840624	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1903 of SEQ ID NO:454, b is an integer of 15 to 1917, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:454, and where b is greater than or equal to a + 14.	N38891, N54665, N45221, F13612, F13702
840631	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1524 of SEQ ID NO:455, b is an integer of 15 to 1538, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:455, and where b is greater than or equal to a + 14.	
840632	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2175 of SEQ ID NO:456, b is an integer of 15 to 2189, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:456, and where b is greater than or equal to a + 14.	H15848, H16160, H27966, H27967, H42798, H87969, N64073, N64076, N64078, AA045740, AA280032, AA280099, AA283727, AA290929, AA814009, AA975514, A1094746, AA449900, AA716758, AA724921, AA860380, AA909482
840633	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1385 of SEQ ID NO:457, b is an integer of 15 to 1399, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:457, and where b is greater than or equal to a + 14.	
840634	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 695 of SEQ ID NO:458, b is an integer of 15 to 709, where both a and b correspond to the positions	AA063114

	of nucleotide residues shown in SEQ ID NO:458, and where b is greater than or equal to a + 14.	
840635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1269 of SEQ ID NO:459, b is an integer of 15 to 1283, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:459, and where b is greater than or equal to a + 14.	
840636	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 421 of SEQ ID NO:460, b is an integer of 15 to 435, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:460, and where b is greater than or equal to a + 14.	
840637	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 640 of SEQ ID NO:461, b is an integer of 15 to 654, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:461, and where b is greater than or equal to a + 14.	AA001547, AA012848, AA012933, AA017085, AA017194, AA018490, AA810954
840639	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2231 of SEQ ID NO:462, b is an integer of 15 to 2245, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:462, and where b is greater than or equal to a + 14.	
840640	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1266 of SEQ ID NO:463, b is an integer of 15 to 1280, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:463, and where b is greater than or equal to a + 14.	
840650	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2417 of SEQ ID NO:464, b is an integer of 15 to 2431, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:464, and where b is greater than or equal to a + 14.	
840652	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 575 of SEQ ID NO:465, b is an integer of 15 to 589, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:465, and where b is greater than or equal to a + 14.	
840653	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1093 of SEQ ID NO:466, b is an integer of 15 to 1107, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:466, and where b is greater than or equal to a + 14.	
840655	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2183 of SEQ ID NO:467, b is an integer of 15 to 2197, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:467, and where b is greater than or equal to a + 14.	
840659	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3597 of SEQ ID NO:468, b is an integer of 15 to 3611, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:468, and where b is greater than or equal to a + 14.	
840660	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 506 of SEQ ID NO:469, b is an integer of 15 to 520, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:469, and where b is greater than or equal to a + 14.	AA253121, AA253250
840661	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 865 of SEQ ID NO:470, b is an integer of 15 to 879, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:470, and where b is greater than or equal to a + 14.	R40087, AA483309, AA720883, AA747744, AA811974, AA853049
840662	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2543 of SEQ ID NO:471, b is an integer of 15 to 2557, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:471, and where b is greater than or equal to a + 14.	R13355, R21688, R23614, R26167, R40871, R46580, R46580, R40871, R67867, R67868, H01101, H01102, H01867, H01868, H02834, H03726, H93708, H95440, H95441, N53845, N66438, N68125, N69039, N73342, AA045604, AA045603, AA101337, AA100423, AA101346, AA101345, AA156296, AA157481, AA158453.

		AA158452. AA181954. AA187577. AA428908. AA281008. AA281174. AA551925. AA557463. AA588077. AA742447. AA768547. AA814696. AA991197. AI017348. C05887. C06049. AA093441. AA496804. AA599560. AA665699. AA707837. AA775203. AA843259. AA844411. AA889762. AI091389
840663	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 453 of SEQ ID NO:472. b is an integer of 15 to 467, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:472, and where b is greater than or equal to a + 14.	
840670	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1826 of SEQ ID NO:473. b is an integer of 15 to 1840, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:473, and where b is greater than or equal to a + 14.	T71092. T67636. R08286. H13339. H16147. H25692. H38182. R84798. R98981. N79217. W19493. W25579. AA034100. AA056965. AA262921. AA720972. AA768301. AA825825. AA972578. AA094484. AA394311. AA487380. AA778203. AI004258. AI005389. Z39071. Z42947. F02333. F06078. AA682274
840671	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1244 of SEQ ID NO:474. b is an integer of 15 to 1258, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:474, and where b is greater than or equal to a + 14.	R46252. R46252. N49076. W04352. W86176. W86177. W92672. W92692. W93417. AA029831. AA085198. AA464962. AA633124. AA737628. AA737662. AA780382. AA811098. AA836105. AA857959. AA994284. AI076231. C01217. AA780068. AI004350
840672	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4217 of SEQ ID NO:475. b is an integer of 15 to 4231, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:475, and where b is greater than or equal to a + 14.	
840673	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 677 of SEQ ID NO:476. b is an integer of 15 to 691, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:476, and where b is greater than or equal to a + 14.	
840674	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R51915. R54456. R54458. H18062. H18757. W03838. W77892. AA629317. F09686

	1404 of SEQ ID NO:477, b is an integer of 15 to 1418, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:477, and where b is greater than or equal to a + 14.	
840677	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1223 of SEQ ID NO:478, b is an integer of 15 to 1237, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:478, and where b is greater than or equal to a + 14.	
840678	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1084 of SEQ ID NO:479, b is an integer of 15 to 1098, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:479, and where b is greater than or equal to a + 14.	T63520, R75617, R75713, R78802, R79103, H25459, H27826, H85479, H85486, H92403, H92620, AA001384, AA001383, AA057832, AA235008, AA253050, AA424651, AA430054, AA430263, AA287947, AA288014, AA481556, AA491320, AA505123, AA548974, AA715297, AA736510, AA747303, AA748308, AA829746, AA909843, AA916866, AA642031, AA211184, AA398153, AA399494, AA477559, AA477676, AA782481, A1079168, A1040143, A1080176, A1082310, D12148
840680	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 670 of SEQ ID NO:480, b is an integer of 15 to 684, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:480, and where b is greater than or equal to a + 14.	
840691	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2981 of SEQ ID NO:481, b is an integer of 15 to 2995, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:481, and where b is greater than or equal to a + 14.	T83393, T84298, T84482, R72668, H05782, H06072, H17206, AA199607, AA236200, AA234037, AA256784, AA256492, AA256503, AA256504, AA255526, AA256710, AA424131, AA515794, AA580599, AA748677, AA872189, AA937350, AA995072, C00417, AA451719, AA992171, A1091615, F01634, F05381
840700	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1234 of SEQ ID NO:482, b is an integer of 15 to 1248, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:482, and where b is greater than or equal to a + 14.	N74558, W02490, AA250756, AA721388, AA937643, AA077596, AA633788, AA779964, AA812535, AA912417, AA978273, AA993172, AA993810, D20826
840701	Preferably excluded from the present invention are one or more polynucleotides comprising a	R72545, H77545, H77546, H91001, W46287, W67764, W67765.



	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1848 of SEQ ID NO:483, b is an integer of 15 to 1862, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:483, and where b is greater than or equal to a + 14.	W72232, W76469, W95399, W95448, AA171990, AA172306, AA193490, AA193486, AA215714, AA481093, AA687382, AA721070, AA731304, AA765386, AA807488, AA830428, AA836173, AA872676, AA903225, AA947751, AA948309, AA679104, AA708104, AA844037, AA773240, AA906091, A1092620
840702	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1650 of SEQ ID NO:484, b is an integer of 15 to 1664, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:484, and where b is greater than or equal to a + 14.	T90642, T83169, R34427, R38259, R46634, R48960, R46634, H08738, H42054, H42099, N55339, N58337, N77345, N77705, W80824, W80945, AA022974, AA045928, AA047535, AA047635, AA129564, AA173541, AA173942, AA189109, AA232209, AA232711, AA256680, AA256679, AA661511, AA877392, AA876721, AA876373, AA977525, W26186, AA045814, AA455935, AA629608, AA456404, AA706605, AA716649, AA716749, AA777167, AA884059, AA910769, AA913276, A1091820, Z30152, Z38891, F05971, F10707
840705	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 955 of SEQ ID NO:485, b is an integer of 15 to 969, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:485, and where b is greater than or equal to a + 14.	
840715	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2558 of SEQ ID NO:486, b is an integer of 15 to 2572, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:486, and where b is greater than or equal to a + 14.	
840717	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1437 of SEQ ID NO:487, b is an integer of 15 to 1451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:487, and where b is greater than or equal to a + 14.	T79990, R16372, R25837, R32657, R42317, R46835, R53484, R53485, R46835, R42317, R60577, R60630, R71392, R72562, H06281, H06328, H10997, H26530, W71994, W76508, W87458, W87554, AA029771, AA029772, AA039881, AA039966, AA046839, AA047010, AA057673, AA069571, AA069563, AA524160, AA865941, A1017434, AA649997, AA705373, AA776517, A1057398, A1078071, T17221, Z40755, Z45024
840718	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1186 of SEQ ID NO:488, b is an integer of 15 to 1200, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:488, and where b is greater than or equal to a + 14.	
840719	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 271 of SEQ ID NO:489, b is an integer of 15 to 285, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:489, and where b is greater than or equal to a + 14.	
840724	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 668 of SEQ ID NO:490, b is an integer of 15 to 682, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:490, and where b is greater than or equal to a + 14.	
840725	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1845 of SEQ ID NO:491, b is an integer of 15 to 1859, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:491, and where b is greater than or equal to a + 14.	T52811, T52812, R55369, R55607, H29580, H29664, N34553, N59374, N72870, N76477, N78788, N93946, W03090, W03506, W07215, W40445, W99359, W99389, AA031839, AA054995, AA120818, AA232731, AA236542, AA424556, AA424653, AA514847, AA528821, AA564104, AA808072, AA446773, AA449408, AA478629, AA644625, Z38400, Z42136
840727	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2695 of SEQ ID NO:492, b is an integer of 15 to 2709, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:492, and where b is greater than or equal to a + 14.	
840731	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1437 of SEQ ID NO:493, b is an integer of 15 to 1451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:493, and where b is greater than or equal to a + 14.	R11513, R11731, R12441, R17288, R56469, R60452, H14889, H21054, R85192, H78221, H78227, H78420, H78427, N44642, N50726, N63598, N74649, N79564, W24822, AA121181, AA179753, AA180330, AA210820, AA227204, AA255636, AA687763, AA761335, AA948300, AA203176, AA216635, AA404332, AA434598, AA703138
840733	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	1254 of SEQ ID NO:494. b is an integer of 15 to 1268, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:494, and where b is greater than or equal to a + 14.	
840734	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 370 of SEQ ID NO:495, b is an integer of 15 to 384, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:495, and where b is greater than or equal to a + 14.	
840736	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 961 of SEQ ID NO:496, b is an integer of 15 to 975, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:496, and where b is greater than or equal to a + 14.	W42658, W45183, W78758, W80493, W84630, W84681, W87610, W87901, W94898, W91935, AA484859, AA484987, AA505968, AA640115, AA573309, AA657855, AA659105, AA659440, AA715002, AA732364, AA740180, AA742752, AA746960, AA804898, AA825656, AA825665, AA987818, N83465, C14070, AA643844, AA652253, F20803, AA432012, AA678021, AA733050, AA782910, AA846523, AI076183, AI085413, D19829
840737	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2061 of SEQ ID NO:497, b is an integer of 15 to 2075, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:497, and where b is greater than or equal to a + 14.	T67132, T67133, T87248, H56042, H56119, N25201, N69014, AA128513, AA129959, AA425701, AA428551, AA911113, AA976370, AA987472, AI004931, AI081047, D80388, D80909, D80910, D81505, C14479, C14492, C14494, C14493, C14495, C14514, C14527, C15539, AA283123, AA779369, AA773654, AI051187, AI091167, AI093159, T24488, AA694308, AA700909
840739	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1890 of SEQ ID NO:498, b is an integer of 15 to 1904, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:498, and where b is greater than or equal to a + 14.	
840746	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2857 of SEQ ID NO:499, b is an integer of 15 to 2871, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:499, and where b is greater than or equal to a + 14.	R12296, R12807, R16375, R16741, R18738, R38102, R42319, R43498, R44177, R51993, R51994, R43498, R43060, R44177, R42319, H40121, H40275, N22396, N69345, W37333, W38750, AA054559, AA054619, AA131766, AA131779, AA150020, AA150085, AA255834, AA548724, AA807007, AA825362, AA828253, N83830, N85321.

		N86360. AA205805. AA436905. AA709097. AA725018, Z22234. T03480. A1016816. A1093402. F08823. F10788
840748	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1610 of SEQ ID NO:500, b is an integer of 15 to 1624, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:500, and where b is greater than or equal to a + 14.	
840750	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 834 of SEQ ID NO:501, b is an integer of 15 to 848, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:501, and where b is greater than or equal to a + 14.	
840751	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3178 of SEQ ID NO:502, b is an integer of 15 to 3192, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:502, and where b is greater than or equal to a + 14.	T39881. T40844, T40852, T40854, T40860. T40866, T50407, T50538, T55741, T94376, T94464, H27286, H81895, H94293, N78697, N99150, W19295, W21325, W24158, W25537, W45247, W72714, W93341, W95026. AA027063, AA065228, AA064926, AA070691, AA099952, AA127948, AA127982, AA142908, AA150910, AA460946, AA461252, AA230313, AA494344, AA534955, AA535709, AA557910, AA564147, AA564626, AA583542, AA523611, AA594463, AA595987, AA603874, AA613440, AA613660, AA635415, AA578985, AA568423, AA916523, AA922346, AA935323, AA650041, AA652730, AA654746, AA454065, AA486952, AA487075, AA487215, AA706108, AA722670, AA846544, AA853055, AA853056, AA853392, AA861048, AA991772, A1042420, A1074102, A1078712, A1041798, A1095622
840757	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 669 of SEQ ID NO:503, b is an integer of 15 to 683, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:503, and where b is greater than or equal to a + 14.	T50000, T50064, T50195, T58356, T58401, T58454, T59152, T94178, R06456, R06510, R72766, R72767, H02583, H02966, H04264, H39892, H41455, H44794, H46477, H46959, H51519, N45305, N54519, N54756, N63507, N64319, N76221, N94805, AA053467, AA056133, AA075160, AA078755, AA078756, AA079464, AA079463, AA079663, AA079767, AA088705, AA100045, AA100739, AA112276, AA112446, AA112416.

		AA113258, AA113355, AA113436, AA115702, AA115703, AA127146, AA132371, AA132616, AA147349, AA147400, AA151458, AA151459, AA156143, AA156398, AA157076, AA157164, AA157503, AA158148, AA158599, AA159018, AA159163, AA159790, AA159943, AA160779, AA160885, AA160895, AA160910, AA179280, AA181232, AA181237, AA181305, AA181255, AA181209, AA181326, AA182784, AA187267, AA187185, AA187224, AA187761, AA186497, AA186503, AA187019, AA187058, AA187039, AA187079, AA188443, AA192753, AA192829, AA192840, AA193199, AA193200, AA194570, AA421647, AA427634, AA469030, AA480763, AA482684, AA493670, AA501840, AA506094, AA507481, AA513173, AA514900, AA515423, AA524000, AA526363, AA526377, AA528558, AA528622, AA528762, AA533899, AA552652, AA555119, AA564174, AA564196, AA582614, AA583793, AA584240, AA588860, AA603073, AA604397, AA577162, AA662810, AA689248, AA689277, AA714332, AA714522, AA720655, AA729281, AA865192, AA888414, AA912488, AA934668, AA936157, AA947503, AA953047, AA961820, AA968484, AA976297, AA983436, AA988025, AA988424, AA991968, AA975722, AI074486, F19276, F19560, N84316, N85047, AA641348, AA641489, AA095374, AA095772, AA167520, AA652050, AA654250, F21094, F21095, AA434414, AA434512, AA470088, AA471285, AA486483, AA669755, AA431412, AA431815, AA434279, F22216, AA776904, AA835523, AA844771, AA845270, AA846028, AA846115, AA788715, AA861511, AA989575, AI027165, AI090099, D19841
840759	<p>Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2182 of SEQ ID NO:504, b is an integer of 15 to 2196, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:504, and where b is greater than or equal to a + 14.</p>	R88018, N46360, N48866
840760	<p>Preferably excluded from the present invention are</p>	T73701, T73726, R09199, R09304.

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 935 of SEQ ID NO:505, b is an integer of 15 to 949, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:505, and where b is greater than or equal to a + 14.	R18652, R48578, R48679, R73134, H72715, H97957, N56993, N73552, W74357, W76552, AA278851, AA508168, AA508735, AA512928, AA528091, AA766418, AA862669, A1003767, A1081289, AA417379, AA421192, AA609588, AA706851, AA285337, AA993015, A1001776, A1082525
840770	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 351 of SEQ ID NO:506, b is an integer of 15 to 365, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:506, and where b is greater than or equal to a + 14.	
840781	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2045 of SEQ ID NO:507, b is an integer of 15 to 2059, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:507, and where b is greater than or equal to a + 14.	T50486, T50620, T92253, T92297, T75117, R13719, R20099, R20756, R24896, R32452, R38544, R39672, R66654, R67375, R71953, R80144, R80145, H09238, H09239, H49089, H49178, H79086, H79087, H81170, H82251, H82354, H94594, H98533, H98540, H98561, N23328, N32489, N33553, N34608, N34615, N35704, N36791, N37062, N45951, N46374, N52614, N55340, N77346, N91916, W24093, W32300, W44887, W52202, W69110, W69235, W93030, W92919, AA010331, AA010332, AA070031, AA070335, AA075063, AA075062, AA085451, AA102617, AA113366, AA113445, AA133629, AA133675, AA131776, AA131809, AA136710, AA136808, AA151948, AA156555, AA157722, AA173681, AA181930, AA187541, AA187547, AA188217, AA186364, AA186932, AA459989, AA463983, AA464118, AA424144, AA424186, AA430453, AA216418, AA524319, AA535579, AA553797, AA582340, AA581875, AA586801, AA617881, AA579678, AA737057, AA736930, AA761601, AA807605, AA805212, AA809972, AA902407, AA902991, AA908502, AA916123, AA932301, AA947441, AA991523, N89110, N89294, C03132, AA093540, AA094654, AA149916, AA648245, AA447373, AA449202, AA598721, AA599096, AA670234, AA722507, AA779120, AA843601, AA844334, AA868803, AA906425, AA927243, A1021936, A1023003, A1022112, A1057609, A1073779, A1088646.

		A1093414, T17246, T16420, F01940, F02536, F03439, F05682, F06177, F06249, F04246, F07152, F07995
840789	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1323 of SEQ ID NO:508, b is an integer of 15 to 1337, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:508, and where b is greater than or equal to a + 14.	H23265, AA250917, AA789157, A1033562, Z38280, F08582
840790	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 717 of SEQ ID NO:509, b is an integer of 15 to 731, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:509, and where b is greater than or equal to a + 14.	H87973, H88155, N66473, AA143034, AA151105, AA528233, AA584398, AA864579
840791	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 930 of SEQ ID NO:510, b is an integer of 15 to 944, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:510, and where b is greater than or equal to a + 14.	H21100, H40810, R89801, AA563736, AA595316, A1056419
840798	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 503 of SEQ ID NO:511, b is an integer of 15 to 517, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:511, and where b is greater than or equal to a + 14.	AA206675, T18945
840802	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3637 of SEQ ID NO:512, b is an integer of 15 to 3651, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:512, and where b is greater than or equal to a + 14.	
840803	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1922 of SEQ ID NO:513, b is an integer of 15 to 1936, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:513, and where b is greater than or equal to a + 14.	T98263, R01276, R01777, H87694, N46514, AA064627, AA064791, AA076077, AA076159, AA083580, AA176354, AA186922, AA188542, AA192936, AA193132, AA234329, AA262890, AA284101, AA284046, AA827592, AA635005, A1015442, A1015761
840809	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1163 of SEQ ID NO:514, b is an integer of 15 to 1177, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:514, and where b is greater than or equal to a + 14.	
840811	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 918 of SEQ ID NO:515, b is an integer of 15 to 932, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:515, and where b is greater than or equal to a + 14.	T60555
840813	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1145 of SEQ ID NO:516, b is an integer of 15 to 1159, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:516, and where b is greater than or equal to a + 14.	
840814	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2437 of SEQ ID NO:517, b is an integer of 15 to 2451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:517, and where b is greater than or equal to a + 14.	T63362, T63686, T88888, T88889, T84250, T84251, R37080, R66483, H27722, H27723, R94403, H53971, H53972, H87801, H87857, N46002, N56932, W38961, W52373, AA032177, AA032176, AA034375, AA034374, AA042798, AA044611, AA044801, AA044666, AA056392, AA056506, AA085500, AA102623, AA100630, AA100629, AA122020, AA122019, AA127357, AA128179, AA126320, AA142870, AA150744, AA150871, AA169401, AA186750, AA188493, AA188849, AA189134, AA587050, AA740555, AA743649, AA805220, AA836673, AA837076, AA878369, AA906612, AA978334, AA977667, AA996072, AA640853, AA442873, C75140, AA628152, AA707458, AA725734, AA844284, AA868206, AA868822, AA884344, AA904845, A1082506, Z40412, F07337
840817	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 975 of SEQ ID NO:518, b is an integer of 15 to 989, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:518, and where b is greater than or equal to a + 14.	R24111, H13796, H39542, W87508, AA045018, AA055435, AA115239, AA137113, AA182593, AA459912, AA598757, AA772338, A1033925, A1041486, D31101
840825	Preferably excluded from the present invention are one or more polynucleotides comprising a	



	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3301 of SEQ ID NO:519, b is an integer of 15 to 3315, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:519, and where b is greater than or equal to a + 14.	
840826	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2347 of SEQ ID NO:520, b is an integer of 15 to 2361, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:520, and where b is greater than or equal to a + 14.	R12213, T79259, R52573, H90609, N34140, AA007443, AA126085, AA203195, AA251452, AA613266, D81536, Z24821
840827	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2507 of SEQ ID NO:521, b is an integer of 15 to 2521, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:521, and where b is greater than or equal to a + 14.	
840828	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1289 of SEQ ID NO:522, b is an integer of 15 to 1303, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:522, and where b is greater than or equal to a + 14.	T86672, T86764, T87773, T87774, R35654, R35761, H57667, H58507, N80737, W07534, W81050, W80799, W95751, W95521, AA040152, AA040816, AA070448, AA213733, AA461551, AA460625, AA471038, AA592998, AA662015, AA747769, AA827708, AA830241, AA393711, AA400724, F21899, A1023732, A1033332, A1089332
840829	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1086 of SEQ ID NO:523, b is an integer of 15 to 1100, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:523, and where b is greater than or equal to a + 14.	T55234, T53974, AA121362, AA121372, F17737, AA614605, AA662456, AA832106, AA939005, AA454502, AA629986, AA928745, AA993303, A1017897, A1052396
840831	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1949 of SEQ ID NO:524, b is an integer of 15 to 1963, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:524, and where b is greater than or equal to a + 14.	
840836	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	R76181, N28426, AA249749, AA249759

	780 of SEQ ID NO:525. b is an integer of 15 to 794, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:525, and where b is greater than or equal to a + 14.	
840837	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2585 of SEQ ID NO:526, b is an integer of 15 to 2599, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:526, and where b is greater than or equal to a + 14.	T77944, R17636, H06632, W48792, W49617, AA121669, AA121741, AA876369, D80125, D79630, D79663, AA479160, AA773279, Z44214
840838	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1291 of SEQ ID NO:527, b is an integer of 15 to 1305, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:527, and where b is greater than or equal to a + 14.	T64743, R14614, H22783, H41174, H80646, H80683, N55490, N69823, N70603, N76977, AA036760, AA054012, AA057377, AA837761, AA987287, W04922, AA393640, AA435678, AA447554, AA448537, AA447593, AA448073, AA448092, AI080255, AI095479
840841	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1617 of SEQ ID NO:528, b is an integer of 15 to 1631, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:528, and where b is greater than or equal to a + 14.	R11201, R11254, R36000, R36374, R70779, R70831, R73839, R73838, R77816, R78184, H00444, H00487, H12294, H12343, H22227, H25152, H41334, H41582, H67783, H83813, N20077, N23800, N66638, N94763, W42581, W42593, AA029286, AA053585, AA053749, AA056556, AA058414, AA102286, AA112945, AA158256, AA160853, AA463315, AA464245, AA464353, AA426154, AA428022, AA554874, AA555227, AA594755, AA569425, AA572786, AA687312, AA721147, AA826769, AA907442, AA989227, AA436199, AA436324, AA723705, M91501, AA971764, AI057365, AI088555, AI090085, AI095652, AA772791
840842	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1930 of SEQ ID NO:529, b is an integer of 15 to 1944, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:529, and where b is greater than or equal to a + 14.	
840843	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1411 of SEQ ID NO:530, b is an integer of 15 to 1425, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:530, and where b is greater than or equal to a +	R07636, R07683, R56490, H15484, H57022, H99251, N21556, N22947, N29473, N33077, N40267, N41499, N44647, N54167, N62284, N67127, N77575, N79824, W72340, W73971, AA035483, AA035015, AA099228, AA136670, AA136786, AA514951, AA558780, AA581821,

	14.	AA767243. AA806856. AA832308. AA922693. D79892. N56078. C14941. AA654492. AA477457. AA477583. AA495757. AA495817. AA628697. AA628687. AA781710. A1004029. A1033065. A1076145. A1076166. A1080265. A1093765
S40845	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1452 of SEQ ID NO:531, b is an integer of 15 to 1466, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:531, and where b is greater than or equal to a + 14.	H85970. H86679. N54585. N76666. W79488. W94055. AA012907. AA012992. AA018226. AA040388. AA040483. AA235697. AA424720. AA424881. AA468337. AA468480. AA470354. AA505886. AA533304. AA535176. AA558028. AA565018. AA568581. AA636065. AA569449. AA570195. AA580697. AA580574. AA769142. AA805257. AA857633. AA865266. AA974247. AA976018. AA983662. A1000909. A1074491. W94054. AA216680. AA283814. AA283815. AA293716. AA399618. AA411154. AA411153. AA430409. AA446547. AA446672. AA447405. AA447406. AA665639. Z19776. AA722802. AA776558. AA897739. AA773270. A1037944. A1056229. A1092063. Z39830. F02213. F04779. T65241. F12078. F09717
840847	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1644 of SEQ ID NO:532, b is an integer of 15 to 1658, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:532, and where b is greater than or equal to a + 14.	T93496. T96330. R33735. R56168. N29545. N47832. N52709. AA057861. AA057051. AA256421. AA423938. AA502373. AA594835. AA837984. AA937125. AA988563. AA642808. C16798. AA653712. D11569. D11567. D11568. D11572. AA759006
840851	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2843 of SEQ ID NO:533, b is an integer of 15 to 2857, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:533, and where b is greater than or equal to a + 14.	
840853	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1321 of SEQ ID NO:534, b is an integer of 15 to 1335, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:534, and where b is greater than or equal to a + 14.	T77874. T91147. T78073. T79015. H46575. H77369. N23303. N71319. N71370. W30700. W68080. W69637. AA029698. AA085548. AA100651. AA100446. AA150243. AA150317. AA179448. AA181464. AA187866. AA192778. AA257060. AA257151. AA483459. AA633204. AA579660. AA744468. AA745238. AA806004. AA806728. AA831848. AA832183. AA916113. AA916084.

		AA919159, AA918478, A1000093, AA094194, AA478126, AA488653, AA486512, AA598836, AA723044, AA844019, AA852336, AA904410, AA969896, A1002026, AA694486
840854	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2804 of SEQ ID NO:535, b is an integer of 15 to 2818, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:535, and where b is greater than or equal to a + 14.	
840858	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1383 of SEQ ID NO:536, b is an integer of 15 to 1397, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:536, and where b is greater than or equal to a + 14.	
840859	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1219 of SEQ ID NO:537, b is an integer of 15 to 1233, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:537, and where b is greater than or equal to a + 14.	T93690, AA046782, AA047471, H70453, W22335
840863	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1002 of SEQ ID NO:538, b is an integer of 15 to 1016, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:538, and where b is greater than or equal to a + 14.	
840868	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1665 of SEQ ID NO:539, b is an integer of 15 to 1679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:539, and where b is greater than or equal to a + 14.	AA026007, AA053000, AA053532, AA078821, AA078789, AA126106, AA531460, AA553445, AA622619, AA877899, W63615, C03141, AA486740, C75022, AA682955, D25821
840869	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1066 of SEQ ID NO:540, b is an integer of 15 to 1080, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	

	NO:540, and where b is greater than or equal to a + 14.	
840870	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2245 of SEQ ID NO:541, b is an integer of 15 to 2259, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:541, and where b is greater than or equal to a + 14.	
840875	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1333 of SEQ ID NO:542, b is an integer of 15 to 1347, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:542, and where b is greater than or equal to a + 14.	N47871, N51132, N79772, W07271, W40335, AA659745, AA454850, AA455191, AA457737, AA480848
840876	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1887 of SEQ ID NO:543, b is an integer of 15 to 1901, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:543, and where b is greater than or equal to a + 14.	H40365, N30582, N57227, AA099212, AA143504, AA429979, AA489199, AA490948, AA503094, AA515940, AA515972, AA526974, AA565952, AA832525, AA847119, AA975937, C16546, AA205184, AA446121, AA446243, AA446429, AI093502, T25068
840881	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 828 of SEQ ID NO:544, b is an integer of 15 to 842, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:544, and where b is greater than or equal to a + 14.	N31249, N33927, N49638, AA169623, AA885642, AA885643, AA995981, D80629, AA654491
840883	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 764 of SEQ ID NO:545, b is an integer of 15 to 778, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:545, and where b is greater than or equal to a + 14.	
840886	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2128 of SEQ ID NO:546, b is an integer of 15 to 2142, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:546, and where b is greater than or equal to a + 14.	
840887	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 1879 of SEQ ID NO:547, b is an integer of 15 to 1893, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:547, and where b is greater than or equal to a + 14.	
840891	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 616 of SEQ ID NO:548, b is an integer of 15 to 630, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:548, and where b is greater than or equal to a + 14.	AA011494, AA036641, AA040117, AA464582, AA229586, AA514441, AA557363, AA605134, AA632063, AA569111, AA731914, AA764872, AA834230, AA865217, AA865800, AA931605, AA975800, AA476216, AA477563, AA664440, AA906128, AA909907, AA994640, AI024748, AA701389
840892	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 572 of SEQ ID NO:549, b is an integer of 15 to 586, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:549, and where b is greater than or equal to a + 14.	T78188, H72434, H81179, N27050, N31296, N56740, N98857, W92285, AA010281, AA017504, AA018836, AA053984
840894	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1572 of SEQ ID NO:550, b is an integer of 15 to 1586, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:550, and where b is greater than or equal to a + 14.	R13791, R18500, R19446, R19717, R26638, R34992, R37650, R41499, R44273, R44694, R49667, R41499, R44273, R44694, R49667, H10866, H21080, H21081, H24215, H24216, H56529, H82728, H83602, H97231, H98771, N23492, N25150, N28896, N52055, N55071, N58330, N77279, N77697, N80782, N80789, W68363, W68498, AA035669, AA063521, AA099156, AA099254, AA100828, AA115528, AA115527, AA122370, AA121425, AA134022, AA131828, AA131994, AA151142, AA151141, AA150051, AA150036, AA197292, AA234967, AA234148, AA252624, AA419370, AA425774, AA426238, AA429953, AA244068, AA244221, AA291229, AA508903, AA521037, AA521047, AA558219, AA639444, AA730255, AA738405, AA764865, AA769630, AA808135, AA866207, AA875854, AA886233, AA911989, AA912330, AA918110, AA933817, AA960949, AA961737, AA970707, AA983973, AI084859, N87221, AA642352, C15736, AA095273, AA206988, AA649545, AA410978, AA443533, AA446839, AA599172, AA599632, AA625694, AA668705, AA678761, AA679282, AA843723, AI041402, AI041859, AI090256, Z40745, F03594, F03920, F07349, F07665, F07689.

		D12052, AA702844
840896	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2129 of SEQ ID NO:551, b is an integer of 15 to 2143, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:551, and where b is greater than or equal to a + 14.	T70566, T70837, R34229, R77683, H72423, N70430, W78960, W80454, AA157568, AA425171, AI081752, AA450124, AA450190, AA479929, AA626156, AI023982, AI079467, D20574
840897	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1620 of SEQ ID NO:552, b is an integer of 15 to 1634, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:552, and where b is greater than or equal to a + 14.	R08644, AA085919, AA085920, AA112589, AA291296, AA531553, AA534454, AA610556, AA632339, AA826535, AA873598, AA973899, AI000209, W22275, AA642711, AA285014, AA290836, AA291785, AA487868, AA487869, AA598896, AA732931, D20744
840898	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 264 of SEQ ID NO:553, b is an integer of 15 to 278, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:553, and where b is greater than or equal to a + 14.	
840904	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2644 of SEQ ID NO:554, b is an integer of 15 to 2658, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:554, and where b is greater than or equal to a + 14.	
840905	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1714 of SEQ ID NO:555, b is an integer of 15 to 1728, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:555, and where b is greater than or equal to a + 14.	
840908	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3341 of SEQ ID NO:556, b is an integer of 15 to 3355, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:556, and where b is greater than or equal to a + 14.	
840909	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	N26769, N30855, N91934, W17097, W76127, AA010929, AA011317, AA026824, AA026957.

	formula of a-b, where a is any integer between 1 to 1065 of SEQ ID NO:557, b is an integer of 15 to 1079, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:557, and where b is greater than or equal to a + 14.	AA065084, AA064997, AA113980, AA113972, AA187311, AA187412, AA491244, AA503832, AA527886, AA603076, AA767201, AA768552, AA806008, AA857130, AA862053, W69334, N90880, AA285256, AA853981, AA971357, A1015443, A1037999, A1089498, F04542
840910	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 710 of SEQ ID NO:558, b is an integer of 15 to 724, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:558, and where b is greater than or equal to a + 14.	
840912	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3111 of SEQ ID NO:559, b is an integer of 15 to 3125, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:559, and where b is greater than or equal to a + 14.	T89929, T97560, T97607, T98767, T98768, R75684, R76638, H29662, R91419, H63674, H84562, N22625, N23668, N59616, N67124, N75308, N78169, W04760, W15411, W15522, W31605, W39524, AA007425, AA007426, AA044991, AA044990, AA161382, AA161383, AA190884, AA190852, AA195140, AA195346, AA195347, AA278498, AA515881, AA523692, AA557400, AA579985, AA732611, AA813932, A1053747, D80095, D80559, D80940, D82547, D82557, D82494, C01801, R29401, AA404683, AA404214, AA634226, AA456641, AA812584, AA884056, A1004948, A1033808, A1038706, A1073466, D20935, Z40790, Z45057, F02232, F05993, AA700153, AA700480
840916	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2631 of SEQ ID NO:560, b is an integer of 15 to 2645, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:560, and where b is greater than or equal to a + 14.	
840917	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1703 of SEQ ID NO:561, b is an integer of 15 to 1717, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:561, and where b is greater than or equal to a + 14.	H30515, H58512, AA428216, AA429793, AA888482, AA402294, AA478415, AA665865, A1079558
840918	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T63366, T63794, T63819, T72173, T72951, T74098, T74471, R40321, R54813, R40321, H28292, H87420,



	formula of a-b, where a is any integer between 1 to 2403 of SEQ ID NO:562, b is an integer of 15 to 2417, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:562, and where b is greater than or equal to a + 14.	H96805, H99895, H99896, N21575, N26498, N35550, N35899, N43971, N46316, N50289, N62230, N67269, N67736, N79322, W03582, W20379, W35114, W93987, W93993, W93961, AA002131, AA002085, AA010861, AA010895, AA032150, AA039874, AA046207, AA046213, AA075922, AA076246, AA076245, AA082698, AA100666, AA100665, AA102690, AA101322, AA115198, AA115199, AA127068, AA125791, AA130142, AA130164, AA160133, AA160152, AA181132, AA223399, AA223717, AA223794, AA225618, AA225617, AA225893, AA226087, AA281188, AA467866, AA532633, AA548553, AA548715, AA565709, AA595388, AA604287, AA610139, AA574387, AA574403, AA576771, AA827594, AA857936, AA862174, AA886789, AA894576, AA933053, AA961640, AA962084, AA971648, A1017658, A1089036, U48642, A1084032, W29098, AA041518, AA206338, AA206730, AA204730, AA218606, AA285284, AA293327, D11555, AA450117, AA626655, AA666366, AA679791, AA844183, AA883770, AA904568, AA904956, AA913275, AA913772, Z39779, F06739, F07232
840922	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1530 of SEQ ID NO:563, b is an integer of 15 to 1544, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:563, and where b is greater than or equal to a + 14.	
840923	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2285 of SEQ ID NO:564, b is an integer of 15 to 2299, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:564, and where b is greater than or equal to a + 14.	
840927	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 350 of SEQ ID NO:565, b is an integer of 15 to 364, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:565.	

	and where b is greater than or equal to a + 14.	
840928	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2467 of SEQ ID NO:566, b is an integer of 15 to 2481, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:566, and where b is greater than or equal to a + 14.	R52991, R52992, AA075795, AA236859, AA237058, AA258294, AA490530, AA582199, AA594981, AA768625, AA918784, AA400122, AA400211, AA599540, AA620310, AA757241, AA853706, Z44647
840929	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1350 of SEQ ID NO:567, b is an integer of 15 to 1364, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:567, and where b is greater than or equal to a + 14.	T65391, T65468, T82268, T83555, R23120, R23121, H05767, H15242, H15243, N27484, N75846, W07429, W55965, W55966, W69486, W69610, AA024480, AA024481, AA035363, AA035364, AA036732, AA045784, AA045785, AA054537, AA054576, AA058867, AA081962, AA082833, AA122107, AA122108, AA160026, AA506569, AA582633, AA593717, AA593757, AA596048, AA741487, AA830268, AA834091, AA917654, AA922770, AA948018, C00527, AA648362, AA448872, AA447937, AA708846, AA769947, AA775569, AA835167, AI090227, F02032, F11824, F09473
840930	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1592 of SEQ ID NO:568, b is an integer of 15 to 1606, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:568, and where b is greater than or equal to a + 14.	T66390, R13067, R20192, R40498, R44978, R54122, R40498, R44978, R55825, R55910, R56182, H05938, H10239, H13040, H22780, H22987, H26826, H28018, R84898, R85844, N48284, N49013, W59970, AA029938, AA030050, AA037606, AA040869, AA043138, AA147575, AA152015, AA152022, AA152089, AA152096, AA150150, AA152219, AA156446, AA429964, AA470402, AA528114, AA594982, AA595134, AA886444, AA972352, F18878, C04576, AA090702, C16326, AA649510, AA211287, AA211332, AA443358, AA446384, AA666350, AA993887, AI032649, AI096674, Z24984, Z25108, Z25360, Z33590, T25134, Z37011, F12229, F00286, F09858
840931	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1371 of SEQ ID NO:569, b is an integer of 15 to 1385, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:569, and where b is greater than or equal to a + 14.	AA164298, AA164299, AA215696, AA553729, AA600053

840941	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1130 of SEQ ID NO:570, b is an integer of 15 to 1144, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:570, and where b is greater than or equal to a + 14.	T71972, T72113, N66952, AA037833, AA037834, AA503937, AA514259, AA568671, C04493, AA400259, AA703387, AA897154, AA905309, AA991791, AI091736, AI097161, AA699338, AA699546
840944	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2740 of SEQ ID NO:571, b is an integer of 15 to 2754, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:571, and where b is greater than or equal to a + 14.	R53077, R53166, N66228, N66588, N98299, N98791, W52420, W58722, AA054166, AA102647, AA101300, AA224382, AA224448, AA504618, AA504713, AA505965, AA577583, AA766244, AA837194, AA936390, AA938580, AA969268, AI056953, Z25291, Z28894, T25120
840945	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2643 of SEQ ID NO:572, b is an integer of 15 to 2657, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:572, and where b is greater than or equal to a + 14.	
840948	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2338 of SEQ ID NO:573, b is an integer of 15 to 2352, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:573, and where b is greater than or equal to a + 14.	
840949	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 314 of SEQ ID NO:574, b is an integer of 15 to 328, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:574, and where b is greater than or equal to a + 14.	
840953	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1664 of SEQ ID NO:575, b is an integer of 15 to 1678, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:575, and where b is greater than or equal to a + 14.	
840954	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	T70122, R01105, R01854, R26511, R50976, W39281, W88823, AA190914, AA220964, AA223912, AA224067, AA292591, AA516293.

	2494 of SEQ ID NO:576. b is an integer of 15 to 2508, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:576, and where b is greater than or equal to a + 14.	AA888082. AA093864. AA644303. AA668429. AA680062. AA705885. Z25045. Z25169. Z28742. Z40110. F06996. F00269
840958	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1517 of SEQ ID NO:577. b is an integer of 15 to 1531, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:577, and where b is greater than or equal to a + 14.	T92026. T92127. T96602. T99639. R07023. R70248. R74432. H24617. H25443. H25488. H25814. H39512. H49218. H49404. H85371. H98480. N21621. N28860. N32291. N44577. N93796. W19136. W46407. N89924. AA252381. AA252643. AA230168. AA251928. AA252509. AA280831. AA281028. AA570114. AA570316. AA688054. AA731686. AA731363. AA737178. AA743784. AA761782. AA805326. AA806145. AA806698. AA807626. AA810694. AA811702. AA857654. AA903433. AA947731. AA976482. AA977020. D80646. AA448459. AA722871. AA834947. AA844661. AA868828. AA912953. AA971589. A1032540. A1093489. Z33450
840960	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1230 of SEQ ID NO:578. b is an integer of 15 to 1244, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:578, and where b is greater than or equal to a + 14.	R80950. R81055. H17096. H17714. H21600. H28031. H39514. N25283. N48074. N93030. N93491. AA005164. AA005250. AA037756. AA039247. AA062857. AA062864. AA159264. AA461323. AA482290. AA523938. AA548271. AA602298. AA612800. AA580232. AA878960. AA954638. AA983694. AA948176. AA452852. AA452868. AA628205. AA629208. AA707757. AA884020. A1086383. A1092362. AA952907. F03951. F04326. F07686
840968	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2511 of SEQ ID NO:579. b is an integer of 15 to 2525, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:579, and where b is greater than or equal to a + 14.	
840969	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3992 of SEQ ID NO:580. b is an integer of 15 to 4006, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:580, and where b is greater than or equal to a + 14.	
840972	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 551 of SEQ ID NO:581, b is an integer of 15 to 565, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:581, and where b is greater than or equal to a + 14.	
840973	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2514 of SEQ ID NO:582, b is an integer of 15 to 2528, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:582, and where b is greater than or equal to a + 14.	T92934, T93051, T95827, T95922, R01416, R01417, R14186, R40475, R40475, R62217, H02303, H02413, N91928, N92794, W19380, W24105, W24106, W92317, W92353, AA009695, AA009414, AA016232, AA022718, AA022810, AA031668, AA031669, AA135522, AA135584, AA233766, AA233817, AA468889, AA502015, AA514448, AA524548, AA613782, AA740659, AA831839, AA856642, AA865523, AA933090, AA937529, AA937525, AA995177, D45313, D80956, C04688, AA642850, C15075, C15074, AA652169, AA404513, AA485401, AA485562, AA626502, AA703641, AI014270, AI027694, AI052552, AI080105, AI094104, Z24781, Z28475, D20204, AA699913
840975	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 493 of SEQ ID NO:583, b is an integer of 15 to 507, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:583, and where b is greater than or equal to a + 14.	AA187971, AA491557
840978	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1917 of SEQ ID NO:584, b is an integer of 15 to 1931, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:584, and where b is greater than or equal to a + 14.	
840980	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1006 of SEQ ID NO:585, b is an integer of 15 to 1020, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:585, and where b is greater than or equal to a + 14.	T91979, T85031, R51511, H08105, H14962, H84344, H95886, N67113, AA001485, AA033681, AA045053, AA045054, AA460816, AA548181, AA602217, AA627119, AA919072, N85463, AA090718, AA090747, AA205839, AA215860, AA889349, AI005058, AI051749
840982	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	753 of SEQ ID NO:586, b is an integer of 15 to 767, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:586, and where b is greater than or equal to a + 14.	
840985	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 833 of SEQ ID NO:587, b is an integer of 15 to 847, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:587, and where b is greater than or equal to a + 14.	AA469388, AA469387, AA579307, AA838301
840989	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2144 of SEQ ID NO:588, b is an integer of 15 to 2158, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:588, and where b is greater than or equal to a + 14.	T56570, T56419, T74072, H02553, H02636, H05217, H28221, H28270, H53671, N24892, N26327, N36312, N39771, N43761, W19923, N91268, AA132017, AA132120, AA195204, AA195313, AA196452, AA196696, AA227654, AA232501, AA232165, AA429770, AA281620, AA281676, AA468179, AA515887, AA533678, AA551958, AA639446, AA577363, AA579740, AA721360, AA729621, AA769527, AA814423, AA826344, AA903583, D81898, D81970, C04597, AA216528, AA216535, AA442781, AA452285, AA452436, AA709278, AA718938, AA771705, AA771724, AA868151, AA993850, A1033921, Z32830, AA952909, F11180, F11002, F11632
840991	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2285 of SEQ ID NO:589, b is an integer of 15 to 2299, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:589, and where b is greater than or equal to a + 14.	T81125, N29118, N36444, N46478, AA169588, AA169707, AA190390, AA197190, AA465591, AA569663, AA572882, AA927990, A1031844, W26259, W26429, W27367, W27994, W28877, AA453067, Z39013, Z42882
840996	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2166 of SEQ ID NO:590, b is an integer of 15 to 2180, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:590, and where b is greater than or equal to a + 14.	R11816, T80577, R18182, R55973, R59293, R61044, H08547, H08548, H16428, AA001999, AA001722, AA181466, AA181638, AA530935, AA811299, AA774853, AA853584, T48535
840997	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1179 of SEQ ID NO:591, b is an integer of 15 to 1193, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	H81891, N27695, AA242758, AA242898, AA262282, AA463638, AA443047, AA677853

	NO:591. and where b is greater than or equal to a + 14.	
840998	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1988 of SEQ ID NO:592, b is an integer of 15 to 2002, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:592, and where b is greater than or equal to a + 14.	H39956, R95173, N21653, N59206, AA126765, W25859, AA126814, AA411155, AA479348, AA663608, AA723137, AA904646, AA936314
840999	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1000 of SEQ ID NO:593, b is an integer of 15 to 1014, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:593, and where b is greater than or equal to a + 14.	T59001, R38613, AA558946, D80113, AA628765, AA931368, AI087859, AI087860, AI088020, AI088042, AI088041, Z41502, T59074, F10347
841000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 319 of SEQ ID NO:594, b is an integer of 15 to 333, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:594, and where b is greater than or equal to a + 14.	T63281
841002	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1106 of SEQ ID NO:595, b is an integer of 15 to 1120, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:595, and where b is greater than or equal to a + 14.	N75236, N79007, W33128, AA044565, AA192107, AA194732, AA430142, AA602405, AA732494, AA730246, AA767992, AA836339, AI083657, AA206755, AA205076, AA649037, AA446467, AA722661, AA993269, AA994380, AI005394, AI032012
841003	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 518 of SEQ ID NO:596, b is an integer of 15 to 532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:596, and where b is greater than or equal to a + 14.	N50091, W78173, W79236, AA758361, AA992853
841008	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1480 of SEQ ID NO:597, b is an integer of 15 to 1494, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:597, and where b is greater than or equal to a + 14.	T71281, T71345, T77436, R08136, R08137, R20906, R21385, R22903, R39269, R43069, R46481, R51904, R52702, R43069, R46481, R43120, R79482, H13227, H18911, H19203, H65049, H65050, H94075, H96326, H96721, N21076, N21154, N21166, N23977, N34347, N42814, N73453, N93204, W02856, W20197, W38726, W38956, W56890, N90551, AA007554, AA037417, AA040911, AA116130, AA116131.

		AA169544, AA169728, AA169445, AA173030, AA210740, AA211832, AA211833, AA420515, AA420563, AA420747, AA420808, AA459156, AA469336, AA480571, AA548615, AA554507, AA554716, AA559111, AA594680, AA602634, AA568997, AA857653, AA938636, AA962481, AA969819, AA988963, C01221, N87866, N88166, C06426, C16205, C16225, C16262, C16328, C16346, C16567, AA093646, AA094628, AA215845, AA248299, AA450084, AA450101, AA450141, AA450164, AA452926, AA453098, AA677261, AA704706, AA776452, AA782448, AA905622, A1024304, A1027088, T10244, T24104, F10814
841013	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2174 of SEQ ID NO:598, b is an integer of 15 to 2188, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:598, and where b is greater than or equal to a + 14.	
841014	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1259 of SEQ ID NO:599, b is an integer of 15 to 1273, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:599, and where b is greater than or equal to a + 14.	R13850, R36993, R40384, R49290, R49290, R70449, H20581, H22501, H41342, W52797, W63724, AA026917, AA149462, AA223955, AA232557, AA416604, AA282009, AA284187, AA534348, N83640, W28199, AA641025, AA652459, AA707275, D19833
841015	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1225 of SEQ ID NO:600, b is an integer of 15 to 1239, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:600, and where b is greater than or equal to a + 14.	T60712, T39204, T40475, T89115, R23975, R42835, R50864, R42835, R80780, R80929, R80980, R81030, R81287, H45854, R85410, H85126, H85165, H86110, H92458, H92459, H96689, N45682, N48966, N64273, N67340, W38863, W60856, W73806, W79809, W79590, AA031812, AA031892, AA039603, AA056740, AA058411, AA069773, AA069809, AA127774, AA133361, AA150512, AA186437, AA188784, AA215296, AA236042, AA250827, AA250884, AA258206, AA459963, AA480598, AA484831, AA524510, AA554692, AA627856, AA633499, AA633500, AA573552, AA577009, AA661865, AA838393, AA838126, AA872284, AA888617, AA954248, AA972651, AA974294, AA978242, A1000986, N84928, W28888.



		AA093374, AA095419, AA649576, AA447092, AA628724, AA635022, AA635099, AA708921, AA782622, AA845435, AA852359, AA283454, AA860493, AA905955, A1015482, A1033996, A1057611, A1041421, A1097090, T15984, F04083, F04704, AA693482
841018	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1272 of SEQ ID NO:601, b is an integer of 15 to 1286, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:601, and where b is greater than or equal to a + 14.	
841019	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 390 of SEQ ID NO:602, b is an integer of 15 to 404, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:602, and where b is greater than or equal to a + 14.	AA248515
841024	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1154 of SEQ ID NO:603, b is an integer of 15 to 1168, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:603, and where b is greater than or equal to a + 14.	
841025	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 444 of SEQ ID NO:604, b is an integer of 15 to 458, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:604, and where b is greater than or equal to a + 14.	AA188466
841026	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 897 of SEQ ID NO:605, b is an integer of 15 to 911, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:605, and where b is greater than or equal to a + 14.	N72911, AA148215, AA166925, AA228038, AA228148, AA483775, AA504475, AA740596, AA742681, AA808693, AA811844, A1054163, D12456, D12055, AA446237, AA599068, A1075720
841027	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 724 of SEQ ID NO:606, b is an integer of 15 to 738, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:606.	H41598, H62017, H69575, H69596, H84745, H95065, N36218, N54430, N80053, W52484, AA010201, AA235462, AA513394, AA559062, H84833, AA574343, AA835915, AA872643, AA877236

	and where b is greater than or equal to a + 14.	
841029	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1334 of SEQ ID NO:607, b is an integer of 15 to 1348, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:607, and where b is greater than or equal to a + 14.	<p>T50950, T40351, T41210, T64654, T99782, T99883, R12658, R20557, R48599, R48701, R20557, H10512, R82975, R83815, H51313, H51908, H54291, H54369, H57072, H57073, H70169, H81838, H89935, H91980, N26532, N26640, N35643, N39712, N39735, N44132, N45472, N46821, N66762, N68174, N73964, N80633, N93213, N93218, N94936, W19558, W19581, W20315, W33192, W37258, W38673, W38998, W38807, W39086, W44806, W49655, W49729, W52842, W56034, W56019, W72523, W96449, W96546, N90712, AA022694, AA022787, AA033992, AA033993, AA055233, AA128163, AA125976, AA151620, AA228010, AA234230, AA235616, AA460804, AA428125, AA428126, AA244254, AA244044, AA282782, AA459422, AA465647, AA514260, AA524819, AA526652, AA527010, AA557557, AA593780, AA594299, AA604168, AA612788, AA622842, AA639066, AA729180, AA730491, AA737387, AA814201, AA847016, AA872392, AA873523, AA885963, AA902850, AA946931, AA968795, AA974320, AA977816, AI094935, AA642338, AA093758, AA094834, AA650022, AA248350, AA402422, AA446745, AA449102, AA449538, AA482267, AA431490, AA431697, AA432060, AA706083, AA706225, AA723554, AA724604, AA732823, AA772101, AA772330, AA781604, AA782387, AA843140, AA843480, AA843756, AA846144, AA846155, AA845500, AA854399, AA855096, AA860829, AA888776, AA889009, AI023231, AI028453, AI031906, AI031928, AI038365, AI051907, AI050990, AI056013, AI066647, AI073764, AI074709, AI076720, AI077283, AI040402, AI087021, AI088075, AI087912, AI092000, AI091592, AI092431, AI092579, AI095442, D20747, F05340, AA694556</p>
841030	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 708 of SEQ ID NO:608, b is an integer of 15 to	T85016

	722, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:608, and where b is greater than or equal to a + 14.	
841031	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 316 of SEQ ID NO:609, b is an integer of 15 to 330, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:609, and where b is greater than or equal to a + 14.	
841034	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1852 of SEQ ID NO:610, b is an integer of 15 to 1866, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:610, and where b is greater than or equal to a + 14.	
841036	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2162 of SEQ ID NO:611, b is an integer of 15 to 2176, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:611, and where b is greater than or equal to a + 14.	
841039	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3605 of SEQ ID NO:612, b is an integer of 15 to 3619, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:612, and where b is greater than or equal to a + 14.	
841040	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:613, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:613, and where b is greater than or equal to a + 14.	
841048	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1419 of SEQ ID NO:614, b is an integer of 15 to 1433, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:614, and where b is greater than or equal to a + 14.	N69349, W37995, W37996, AA099842, AA129834, AA134879, AA136131, AA136101, AA213847, AA278288, AA278834, AA639630, AA743611, AA745858, AA765478, AA829501, AA830648, AA837909, AA877341, AA887480, AA910616, C01321, AA134878, AA410913, AA441809, AA441871, AA447551, AA679476, F13794

841049	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 492 of SEQ ID NO:615, b is an integer of 15 to 506, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:615, and where b is greater than or equal to a + 14.	AA206670
841050	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2160 of SEQ ID NO:616, b is an integer of 15 to 2174, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:616, and where b is greater than or equal to a + 14.	R13856, R36998, H88745, H88749, H88750, H88744, H88745, H88750, N20597, N27562, N28993, N40383, W23671, W42418, W42515, AA017276, AA054535, AA054527, AA081056, AA083641, AA165258, AA165257, AA195316, AA195497, AA504774, AA731655, AA743407, AA827654, A1074376, AA096064, AA677874, A1049801, T10385, D31353, AA700430
841052	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3133 of SEQ ID NO:617, b is an integer of 15 to 3147, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:617, and where b is greater than or equal to a + 14.	
841054	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2515 of SEQ ID NO:618, b is an integer of 15 to 2529, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:618, and where b is greater than or equal to a + 14.	
841055	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 537 of SEQ ID NO:619, b is an integer of 15 to 551, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:619, and where b is greater than or equal to a + 14.	T86070
841056	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1721 of SEQ ID NO:620, b is an integer of 15 to 1735, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:620, and where b is greater than or equal to a + 14.	T65020, T66102, T74444, R12529, R36487, R36488, R37425, R52082, R52176, N58833, N75250, AA573305, AA687450, AA687507, AA810182, AA815088, AA908253, A1084103, AA489756, AA844081, AA844438, AA854762, AA897722, F11861, F12468, T83267, F09506, F10088
841060	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	

	formula of a-b, where a is any integer between 1 to 1012 of SEQ ID NO:621, b is an integer of 15 to 1026, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:621, and where b is greater than or equal to a + 14.	
841061	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 656 of SEQ ID NO:622, b is an integer of 15 to 670, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:622, and where b is greater than or equal to a + 14.	W47450, AA491124
841062	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2149 of SEQ ID NO:623, b is an integer of 15 to 2163, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:623, and where b is greater than or equal to a + 14.	
841063	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 587 of SEQ ID NO:624, b is an integer of 15 to 601, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:624, and where b is greater than or equal to a + 14.	AA227288, AA282718
841067	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 579 of SEQ ID NO:625, b is an integer of 15 to 593, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:625, and where b is greater than or equal to a + 14.	
841074	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2258 of SEQ ID NO:626, b is an integer of 15 to 2272, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:626, and where b is greater than or equal to a + 14.	T39947, T40903, T90518, T90617, T86882, T86883, R11373, T79972, T83358, T83504, R16291, R18540, R18728, R21852, R21872, R32969, R33513, R34056, R35153, R37578, R41528, R42089, R50812, R41528, R42089, R63072, R63114, R66886, R68286, R68328, R77261, R77305, H04160, H04159, H09820, H09915, H11374, H11399, H11475, H11580, H20564, H20656, H20724, H20725, H45913, R87571, H71492, H71493, H77970, H77971, H85921, H95617, H97011, H97137, H97973, H99201, H99869, N20626, N21042, N23341, N23509, N27621, N27863, N28554, N28813, N33434, N35711, N36525, N40636, N42409, N50418, N50473.

		N55217. N55526. N77009. W15345. W31916. W39297. W39437. W40562. W40586. W52515. W56373. W56584. W56673. W56738. W60072. W73328. AA001060. AA001061. AA001355. AA012936. AA013022. AA020854. AA021013. AA021245. AA021350. AA041249. AA044791. AA057517. AA070118. AA081114. AA081289. AA081518. AA081758. AA081654. AA081910. AA081807. AA083386. AA083520. AA084143. AA084169. AA084637. AA102204. AA101101. AA112305. AA112273. AA113158. AA113205. AA113234. AA113290. AA112514. AA114269. AA114292. AA121997. AA121998. AA122357. AA122358. AA127073. AA125796. AA134357. AA134635. AA148203. AA148204. AA148658. AA148659. AA156277. AA156388. AA158662. AA159027. AA160336. AA159855. AA160818. AA176261. AA176262. AA181259. AA182937. AA187516. AA186906. AA186943. AA210754. AA211829. AA223289. AA223297. AA223271. AA223898. AA223866. AA223865. AA223930. AA224002. AA226834. AA227007. AA251494. AA464562. AA464663. AA282038. AA282381. AA282799. AA282890. AA454945. AA455324. AA459366. AA459591. AA471068. AA493188. AA506956. AA515184. AA525415. AA528016. AA531574. AA557548. AA559080. AA558794. AA601508. AA602820. AA604093. AA580330. AA665041. AA688154. AA714131. AA721076. AA729400. AA730738. AA736940. AA745800. AA746251. AA747771. AA749097. AA761791. AA765245. AA769486. AA810468. AA809803. AA815070. AA815124. AA825529. AA827628. AA827818. AA830566. AA831651. AA832026. AA836109. AA856618. AA858034. AA862500. AA908700. AA916911. AA923104. AA911251. AA922814. AA948643. AA975963. AA976127. AA988496. AA995369. AI015981. D82125. N85599. N85825. W60998. N87121. N88156. C05715. C05853. AA046846. AA641779. AA070117. C20828. C21327. AA159483. AA206049. AA206104. AA206105.
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841076	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 857 of SEQ ID NO:627, b is an integer of 15 to 871, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:627, and where b is greater than or equal to a + 14.	
841081	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 765 of SEQ ID NO:628, b is an integer of 15 to 779, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:628, and where b is greater than or equal to a + 14.	H80595. N66964. W60868, W60944. AA554024. AA581858, AA603775. AA569390. AA721420. AA730838. AA746990. AA764955. AA824533. AA886662. AA902151. AA922977. AA931633. AI004155. C17761. AA643235. AA249456. AA401851. AA447213. AA769929. AA861067. AA868853. AI001993. AI038228. AI080577. D12310. AA699302. AA700733
841083	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1821 of SEQ ID NO:629. b is an integer of 15 to 1835, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:629, and where b is greater than or equal to a + 14.	
841089	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T97583. H27459. H28283. H30123. H30163. H40493. H64399. H99038. N20188. N29090. W24593.

	formula of a-b, where a is any integer between 1 to 1083 of SEQ ID NO:630, b is an integer of 15 to 1097, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:630, and where b is greater than or equal to a + 14.	W47194, W47309, W51990, W52638, W56428, W56312, W73795, W78984, W80386, W85832, W87763, W87679, W93594, W93490, AA010192, AA010091, AA229878, AA230283, AA508851, AA553908, H64447, AA582764, AA805299, AA877051, AI053512, AI053734, AI054001, AI054092, AI054119, AI054274, AI054309, AA758790, AA972288, AI028150, AI077801, AI092052, D20235, T97631
841093	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1523 of SEQ ID NO:631, b is an integer of 15 to 1537, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:631, and where b is greater than or equal to a + 14.	
841097	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1887 of SEQ ID NO:632, b is an integer of 15 to 1901, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:632, and where b is greater than or equal to a + 14.	
841098	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1736 of SEQ ID NO:633, b is an integer of 15 to 1750, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:633, and where b is greater than or equal to a + 14.	T39572, R32405, R78435, R82780, H01823, W23901, AA705025
841101	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1912 of SEQ ID NO:634, b is an integer of 15 to 1926, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:634, and where b is greater than or equal to a + 14.	R11755, R12465, R23435, R54254, H10274, N31847, W63594, AA488942, AA581018, AA767423, N56490, W26165, N87429, AA093862, Z41898
841113	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1332 of SEQ ID NO:635, b is an integer of 15 to 1346, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:635, and where b is greater than or equal to a + 14.	



	14.	
841115	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1570 of SEQ ID NO:636, b is an integer of 15 to 1584, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:636, and where b is greater than or equal to a + 14.	
841116	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1649 of SEQ ID NO:637, b is an integer of 15 to 1663, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:637, and where b is greater than or equal to a + 14.	
841117	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3933 of SEQ ID NO:638, b is an integer of 15 to 3947, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:638, and where b is greater than or equal to a + 14.	
841125	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1413 of SEQ ID NO:639, b is an integer of 15 to 1427, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:639, and where b is greater than or equal to a + 14.	R40268, R40268, R60037, H05829, H71311, H71355, H94227, N30711, N56686, W70033, W80987, W94564, W92648, AA036715, AA043642, AA045098, AA045127, AA057355, AA070703, AA150080, AA186980, AA196549, AA513466, AA564458, H92998, AA584288, AA587915, AA746344, AA749431, AA836837, AA946608, AA977318, AI000432, AI000474, AA150015, AA487107, AA777153, AA778651, AA778720, AA824341, AI038357, AI038499, AI076148, AI077415, AI040155, AI090830, T16464, AA682387
841127	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 906 of SEQ ID NO:640, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:640, and where b is greater than or equal to a + 14.	N56381
841128	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1692 of SEQ ID NO:641, b is an integer of 15 to	

	1706, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:641, and where b is greater than or equal to a + 14.	
841132	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2156 of SEQ ID NO:642, b is an integer of 15 to 2170, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:642, and where b is greater than or equal to a + 14.	
841133	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1698 of SEQ ID NO:643, b is an integer of 15 to 1712, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:643, and where b is greater than or equal to a + 14.	
841134	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1779 of SEQ ID NO:644, b is an integer of 15 to 1793, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:644, and where b is greater than or equal to a + 14.	T74160, R06227, R06228, R20261, N39674, AA010503, AA010502, AA258312, AA258463, AA261908, AA737428, AA775864, F12625
841135	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2665 of SEQ ID NO:645, b is an integer of 15 to 2679, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:645, and where b is greater than or equal to a + 14.	T87474, T81011, T98855, T99451, R12662, R20561, R35774, R20561, H21581, H30226, H30799, H38312, R87419, R87929, H60442, H60488, H82962, H83193, N66578, N98838, W02116, W32577, W74585, W94377, AA228054, AA228143, AA242795, AA252182, AA482136, AA491273, AA503197, AA603089, AA740514, AA847687, AA872051, AA904292, AA908878, AA937801, AA937818, AA937819, AA989229, A1081549, W27606, W28260, C01173, AA090299, AA292408, AA394244, AA430326, AA443626, AA678857, AA779761, AA838766, AA860401, AA890101, AA772701, AA905819, AA913578, AA913854, AA916557, A1073446, A1040348, A1086394, F04810, F08603
841136	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 818 of SEQ ID NO:646, b is an integer of 15 to 832, where both a and b correspond to the positions	T75313, R38678, H08805, H08881, H29671, W45345, AA460481, AA461049, AA514387, AA928902, C06109, C15637, A1033621, F13191, F10796

	of nucleotide residues shown in SEQ ID NO:646, and where b is greater than or equal to a + 14.	
841138	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1311 of SEQ ID NO:647, b is an integer of 15 to 1325, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:647, and where b is greater than or equal to a + 14.	T74162, R08056, R37869, R51362, H95451, N47377, N50420, N51509, N56992, N63081, W02768, W74061, W78768, W81120, AA004354, AA004355, AA010410, AA011238, AA194618, AA461179, AA492472, AA602060, AA742194, AA886331, AA904165, AA947316, AA969817, C02127, AA642584, AA393447, AA398743, AA449962, AA706890, AA757113, AA777532, AA812606, AA971808, AA947589, A1033060, A1077473, F12626, F10242
841139	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 592 of SEQ ID NO:648, b is an integer of 15 to 606, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:648, and where b is greater than or equal to a + 14.	
841141	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1682 of SEQ ID NO:649, b is an integer of 15 to 1696, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:649, and where b is greater than or equal to a + 14.	T70178, T78370, H06915, H19407, H20353, H59580, H68320, AA282429, AA504514, AA504598, AA564110, AA622709, AA635277, AA814782, AA094950, AA890363, A1082674, T69852
841142	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3045 of SEQ ID NO:650, b is an integer of 15 to 3059, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:650, and where b is greater than or equal to a + 14.	R16159, R55052, R59723, R59832, R72647, R72726, H60244, N33957, N49667, N73245, N79519, N79654, W16510, W16960, AA032239, AA033647, AA463305, AA280166, AA729292, AA954720, AA988492, A1015581, C02527, AA393868, AA478565, AA478698, AA773346, A1032816, A1078056, Z38500, Z42263, R15417, AA701338
841145	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1352 of SEQ ID NO:651, b is an integer of 15 to 1366, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:651, and where b is greater than or equal to a + 14.	T50010, R23613, R26166, R31656, R32370, H43626, H44680, R97791, R97841, H96639, N36375, AA192798, AA236435, AA262943, AA491551, AA491856, AA506260, AA533612, AA563684, AA639509, AA193170, AA453170, AA478555, AA478689, AA628811, AA971928
841146	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1411 of SEQ ID NO:652, b is an integer of 15 to	T49969, T55739, T55781, R44196, R44196, R56223, R65770, R65861, H07914, H29735, H47548, N23748, N33136, N36915, N42188, N58782, AA044179, AA044364, AA056411.

	1425, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:652, and where b is greater than or equal to a + 14.	AA056659, AA088892, AA129553, AA136567, AA182691, AA460927, AA461231, AA423834, AA423872, AA429008, AA284199, AA502390, AA503746, AA524414, AA573485, AA731750, AA748643, N42149, C03886, C04870, AA401440, AA443282, AA453535, AA680012, AA885303, AA773518, AA905979, AA917504, AA993697, AI014527, AI038343, AI039552, AI075983, AI040477, T15474, Z40499
841150	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 600 of SEQ ID NO:653, b is an integer of 15 to 614, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:653, and where b is greater than or equal to a + 14.	
841153	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2798 of SEQ ID NO:654, b is an integer of 15 to 2812, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:654, and where b is greater than or equal to a + 14.	
841154	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1983 of SEQ ID NO:655, b is an integer of 15 to 1997, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:655, and where b is greater than or equal to a + 14.	
841156	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1583 of SEQ ID NO:656, b is an integer of 15 to 1597, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:656, and where b is greater than or equal to a + 14.	
841157	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 358 of SEQ ID NO:657, b is an integer of 15 to 372, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:657, and where b is greater than or equal to a + 14.	
841159	Preferably excluded from the present invention are one or more polynucleotides comprising a	T68013, T68157, R10329, R21935, R22192, R22205, R22243, R22259.

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1212 of SEQ ID NO:658, b is an integer of 15 to 1226, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:658, and where b is greater than or equal to a + 14.	R22584, R36709, R37550, R37969, R56215, H12513, H16028, H42778, H42777, H43237, H49572, H54638, H62014, H62015, H87009, H96461, H99230, N20416, N21538, N26351, N26416, N31763, N32343, N57436, N68981, N76396, N94358, W47130, W47170, W47092, W47303, W56010, W56319, W57999, W58082, W72901, W80918, W80919, W96026, W96247, AA009932, AA027098, AA035781, AA055834, AA056358, AA135747, AA135791, AA243433, AA513298, AA526888, AA553702, AA564515, AA569564, AA578962, AA659038, AA664637, AA664725, AA687093, AA863102, AA865570, AA937259, AA948115, F18278, F19594, N56026, AA642679, AA205043, AA284794, AA284555, AA402214, AA402779, AA421675, AA421674, AA442253, AA477073, AA670491, F22786, AA703506, AA732970, AA854540, AA993128, A1023954, A1039979, A1041931, A1094341, T24697, R10328
841164	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 450 of SEQ ID NO:659, b is an integer of 15 to 464, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:659, and where b is greater than or equal to a + 14.	
841167	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2535 of SEQ ID NO:660, b is an integer of 15 to 2549, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:660, and where b is greater than or equal to a + 14.	
841170	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1148 of SEQ ID NO:661, b is an integer of 15 to 1162, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:661, and where b is greater than or equal to a + 14.	R01156, R05766, R36365, H10217, H10272, R85306, R85305, R92966, R94593, R94594, H87399, N30640, N62299, N67420, N75554, N95145, W69646, W69647, W87822, W87911, AA025260, AA025338, AA054320, AA054420, AA070779, AA132029, AA132151, AA147254, AA156241, AA173636, AA458647, AA458883, AA459073, AA282256, AA490721, AA491213, AA581846, AA581975, AA592924, AA617652, AA715103, AA827927, AA878469.

		AA922921, AA931906, AI024987, AI031704, R29605, AA641542, AA210625, AA447827, AA679290, AA845918, AA992688, AI005398, AI093117
841173	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1164 of SEQ ID NO:662, b is an integer of 15 to 1178, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:662, and where b is greater than or equal to a + 14.	T55223, T80732, R48806, R48918, H04949, H04950, H39561, AA039409, AA100837, AA128896, AA143629, AA191274, AA191696, AA223135, AA223325, AA421101, AA426158, AA910569, AA399132, AA399614, AA481845, F01004
841176	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 726 of SEQ ID NO:663, b is an integer of 15 to 740, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:663, and where b is greater than or equal to a + 14.	T57362, T57445, N98867, W04663, W58769, AA148433, AA156103, AA157650, AA157759, AA192185, AA194358, AA491525, AA492088, AA515848, AA526390, AA639064, AA575866, AA579682, AA728989, AA737291, AA740468, AA741404, AA827641, AA862841, AA932208, AA974467, AA995725, F19218, F19304, N55638, N56464, N89217, AA247353, AA401334, F20491, F20992, F21312, AA608827, F22463, F22587, AA705812, AA889507
841178	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1656 of SEQ ID NO:664, b is an integer of 15 to 1670, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:664, and where b is greater than or equal to a + 14.	
841180	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3350 of SEQ ID NO:665, b is an integer of 15 to 3364, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:665, and where b is greater than or equal to a + 14.	
841181	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1209 of SEQ ID NO:666, b is an integer of 15 to 1223, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:666, and where b is greater than or equal to a + 14.	
841182	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1983 of SEQ ID NO:667, b is an integer of 15 to 1997, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:667, and where b is greater than or equal to a + 14.	
841185	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 572 of SEQ ID NO:668, b is an integer of 15 to 586, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:668, and where b is greater than or equal to a + 14.	R52220, R70423, N35269, N40823, W42954, AA281810, AA524713, AA093155
841187	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1083 of SEQ ID NO:669, b is an integer of 15 to 1097, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:669, and where b is greater than or equal to a + 14.	R13459, R37369, AA814459, AA977199, AA989190, AI004908, F19612, C15655, AA203403, AA486444, AA489297, AA677279, AA775589, AA909931, AI032801, AI034230, AI040649, AI091697
841188	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2886 of SEQ ID NO:670, b is an integer of 15 to 2900, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:670, and where b is greater than or equal to a + 14.	
841189	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 973 of SEQ ID NO:671, b is an integer of 15 to 987, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:671, and where b is greater than or equal to a + 14.	AA001736, AA132627, AA568390, F19019, W26201, W69639, W69638
841192	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2811 of SEQ ID NO:672, b is an integer of 15 to 2825, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:672, and where b is greater than or equal to a + 14.	T71550, T83900, R08468, T83730, T96865, T96866, R25503, R33010, R33895, R35402, R49701, R49701, H26757, H26856, H26871, H64273, H64272, H79029, N38824, N45452, N59621, N78174, W32994, AA022663, AA022744, AA033910, AA034030, AA210790, AA215315, AA228688, AA489044, AA552631, AA761038, AA761245, AA765845, AA805289, AA862618, AA918378, AA991204, C20951, AA476743, AA476746, AA663218, AA663792, AA706854, AI022429, AI028102, AI038738, AI051573, AI051788, AI082582, AI084275, D25731.

		F04009, F06746, F07761, AA701500, AA702733
841194	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1416 of SEQ ID NO:673, b is an integer of 15 to 1430, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:673, and where b is greater than or equal to a + 14.	T74233, T88950, T89868, R11972, T84649, R18375, R27737, R27738, R37065, R42578, R42578, R61382, R61424, R69423, R69553, R77025, H00275, H00276, H08524, H08525, R97851, H81046, H81141, AA429044, AA429638, AA504809, AA505159, AA552544, AA582297, AA613016, AA627349, AA639590, AA573385, AA576599, AA657983, AA804493, AA866130, AA866200, AA908911, AA908916, AA922964, A1088797, AA648981, AA649000, AA442874, AA456809, AA479714, AA479836, AA485736, AA486457, AA448038, AA431346, AA434235, AA434321, AA683236, AA779612, AA885013, AA948075, A1004354, A1039367, A1090972, AA953777, T19678, F12570, F10186
841195	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1111 of SEQ ID NO:674, b is an integer of 15 to 1125, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:674, and where b is greater than or equal to a + 14.	
841198	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1063 of SEQ ID NO:675, b is an integer of 15 to 1077, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:675, and where b is greater than or equal to a + 14.	
841200	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 906 of SEQ ID NO:676, b is an integer of 15 to 920, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:676, and where b is greater than or equal to a + 14.	R55754, R55738, H22912, H24090, H29740, AA232258, AA442918, Z42805, F13301
841201	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1233 of SEQ ID NO:677, b is an integer of 15 to 1247, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:677, and where b is greater than or equal to a + 14.	AA932596, D80656, D81201, D81580, C15574, A1025303, AA701535



841202	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2653 of SEQ ID NO:678, b is an integer of 15 to 2667, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:678, and where b is greater than or equal to a + 14.	
841209	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 938 of SEQ ID NO:679, b is an integer of 15 to 952, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:679, and where b is greater than or equal to a + 14.	
841210	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2295 of SEQ ID NO:680, b is an integer of 15 to 2309, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:680, and where b is greater than or equal to a + 14.	
841213	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 437 of SEQ ID NO:681, b is an integer of 15 to 451, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:681, and where b is greater than or equal to a + 14.	AA133947
841217	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1284 of SEQ ID NO:682, b is an integer of 15 to 1298, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:682, and where b is greater than or equal to a + 14.	C17425
841219	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 845 of SEQ ID NO:683, b is an integer of 15 to 859, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:683, and where b is greater than or equal to a + 14.	
841222	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1237 of SEQ ID NO:684, b is an integer of 15 to 1251, where both a and b correspond to the	

	positions of nucleotide residues shown in SEQ ID NO:684, and where b is greater than or equal to a + 14.	
841223	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2586 of SEQ ID NO:685, b is an integer of 15 to 2600, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:685, and where b is greater than or equal to a + 14.	T48001, T48881, T48882, T73986, T81100, T81151, T82458, R14770, R31779, R42540, R42540, R59226, R59286, R74588, R78473, R78539, H11611, H11700, H24632, H30034, H42336, R99669, N27968, N40733, N93719, W21125, W73346, W94235, W94237, AA026530, AA039301, AA039302, AA039611, AA234259, AA460377, AA460815, AA428913, AA429928, AA468129, AA468177, AA490801, AA602786, AA622704, AA911637, AA972558, AA973705, AA987526, AI005182, AI032242, W21787, W27428, AA654230, AA443814, AA447184, AA453411, AA453917, AA479442, AA489468, AA885138, AA904627, AA972149, AI014507, AI079892, Z39201, Z43111, D45594, D45647, F13465, F10053, AA700349
841224	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4627 of SEQ ID NO:686, b is an integer of 15 to 4641, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:686, and where b is greater than or equal to a + 14.	
841226	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 386 of SEQ ID NO:687, b is an integer of 15 to 400, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:687, and where b is greater than or equal to a + 14.	
841227	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2737 of SEQ ID NO:688, b is an integer of 15 to 2751, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:688, and where b is greater than or equal to a + 14.	
841228	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 955 of SEQ ID NO:689, b is an integer of 15 to 969, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:689.	

	and where b is greater than or equal to a + 14.	
841231	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 965 of SEQ ID NO:690, b is an integer of 15 to 979, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:690, and where b is greater than or equal to a + 14.	
841232	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 679 of SEQ ID NO:691, b is an integer of 15 to 693, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:691, and where b is greater than or equal to a + 14.	AA187539, AA593955, AA865468, AA247589, AA292221, AA394258, AI090863, D20810
841233	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1368 of SEQ ID NO:692, b is an integer of 15 to 1382, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:692, and where b is greater than or equal to a + 14.	T86954, T87037, T91296, R11017, T78621, T79104, T84877, R00236, R00549, R06637, R27822, R27923, R35744, R45232, R45232, H21370, H21411, H51867, H60283, H60590, H67220, H99964, N28349, N30781, N41554, W47213, W47113, W67148, W67391, AA004695, AA004747, AA053562, AA053590, AA281060, AA287033, AA490978, AA586578, AA720644, AA766114, AA838572, AA907289, AA922314, AA923031, AA977015, AA975857, AI085503, AI085638, AA642438, AA399464, AA448558, AA449705, AA723708, AA781911, AA846349, AA861478, AA907377, AA907376, AA909728, AA913796, AA994740, AI017543, AI027687, AI042241, AI051442, Z41060
841234	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3084 of SEQ ID NO:693, b is an integer of 15 to 3098, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:693, and where b is greater than or equal to a + 14.	
841236	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 475 of SEQ ID NO:694, b is an integer of 15 to 489, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:694, and where b is greater than or equal to a + 14.	
841238	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general	T40324, T41188, T74964, R10059, T80454, T85689, R12791, R19812, R24766, R24982, R33136, R33288,

	formula of a-b, where a is any integer between 1 to 1830 of SEQ ID NO:695, b is an integer of 15 to 1844, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:695, and where b is greater than or equal to a + 14.	R39060, R43570, R45243, R45498, R52595, R54047, R54048, R43570, R45243, R45498, H19030, H19321, H24420, H42322, H51876, H72225, H83771, H83913, H99717, N26245, N30134, N41682, N55555, N75922, N76940, N80564, W04682, W07687, W31765, W59945, W59946, W63652, W72530, W72085, W76498, W77868, AA081593, AA082766, AA084671, AA085794, AA088881, AA102302, AA127864, AA188946, AA188844, AA191212, AA196628, AA196960, AA631298, AA639450, AA904092, AA932353, AA961333, AA987825, AA988659, AA996270, AA205904, AA209353, AA393979, AA435659, AA453452, AA600183, AA663064, AA670333, AA774102, AA843676, AA854275, T03100, T03322, A1031917, A1066639, A1077924, A1078160, A1085089, T15361, T23623, T24082, Z42130, Z44535, F01670, F03604, F04096, F07839, F12754, F10361, AA700109
841239	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 591 of SEQ ID NO:696, b is an integer of 15 to 605, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:696, and where b is greater than or equal to a + 14.	R99939, H63661
841242	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 526 of SEQ ID NO:697, b is an integer of 15 to 540, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:697, and where b is greater than or equal to a + 14.	
841243	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 482 of SEQ ID NO:698, b is an integer of 15 to 496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:698, and where b is greater than or equal to a + 14.	
841248	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 973 of SEQ ID NO:699, b is an integer of 15 to 987, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:699.	

	and where b is greater than or equal to a + 14.	
841250	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1661 of SEQ ID NO:700, b is an integer of 15 to 1675, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:700, and where b is greater than or equal to a + 14.	
841251	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 542 of SEQ ID NO:701, b is an integer of 15 to 556, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:701, and where b is greater than or equal to a + 14.	
841254	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1124 of SEQ ID NO:702, b is an integer of 15 to 1138, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:702, and where b is greater than or equal to a + 14.	AA765476, AA807570, AI056471, AI075269, T24438
841263	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1048 of SEQ ID NO:703, b is an integer of 15 to 1062, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:703, and where b is greater than or equal to a + 14.	H58432, AA996201, AA598598, AA676797
841266	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 851 of SEQ ID NO:704, b is an integer of 15 to 865, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:704, and where b is greater than or equal to a + 14.	AA194189, Z36730
841269	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1369 of SEQ ID NO:705, b is an integer of 15 to 1383, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:705, and where b is greater than or equal to a + 14.	
841272	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to	

	1141 of SEQ ID NO:706. b is an integer of 15 to 1155, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:706, and where b is greater than or equal to a + 14.	
841273	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1403 of SEQ ID NO:707, b is an integer of 15 to 1417, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:707, and where b is greater than or equal to a + 14.	H03779, H16233, AA026349, AA192805, AA662333, F19078, AA192917, AA921922, A1014904, Z30103
841276	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 934 of SEQ ID NO:708, b is an integer of 15 to 948, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:708, and where b is greater than or equal to a + 14.	
841277	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1315 of SEQ ID NO:709, b is an integer of 15 to 1329, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:709, and where b is greater than or equal to a + 14.	
841278	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 520 of SEQ ID NO:710, b is an integer of 15 to 534, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:710, and where b is greater than or equal to a + 14.	
841279	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1129 of SEQ ID NO:711, b is an integer of 15 to 1143, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:711, and where b is greater than or equal to a + 14.	R09746, R10170, R65983, R65982, AA159394
841280	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3765 of SEQ ID NO:712, b is an integer of 15 to 3779, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:712, and where b is greater than or equal to a + 14.	R09747, R10073, R33389, R33390, R53830, R53881, R62135, R62236, R68366, R68572, H00283, H00284, H02853, H03749, AA157541, AA158194, AA159297, AA548738, D82787, C02009, AA443368, AA446944, AA431753, AA770228, AA947580, AA947962, A1091589, T48513

841282	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1022 of SEQ ID NO:713, b is an integer of 15 to 1036, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:713, and where b is greater than or equal to a + 14.	T74298, R51507, R78167, H08569, N39881, N57231, AA460120, N56328, N83397, N86852, N87082, C04661, AA090325, AA095234, AA095835, AA216220, AA904685, AA905691, Z26999, F12501
841283	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4429 of SEQ ID NO:714, b is an integer of 15 to 4443, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:714, and where b is greater than or equal to a + 14.	T58069, T58183, R14589, R23688, R24089, R27635, R30799, R31679, R31721, R41362, R44141, R41362, R44141, R72635, R72711, H02881, H17299, H17300, H44461, N33623, N49466, W15423, W39662, W52186, W58286, W58287, AA034289, AA035171, AA040731, AA041202, AA043194, AA043349, AA043596, AA047418, AA047419, AA058764, AA101975, AA112998, AA114961, AA114960, AA127933, AA126680, AA156822, AA193516, AA195626, AA256538, AA256426, AA468894, AA507356, AA507368, AA516516, AA534147, AA555266, AA594917, AA631771, AA568460, AA715240, AA838519, C04979, AA707718, AA709391, AA725438, AA928191, A1024960, A1050938, A1074716, A1078311, A1087155, A1088407, A1088592, A1089297, Z38688, Z42494, AA683480, AA693964
841286	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2085 of SEQ ID NO:715, b is an integer of 15 to 2099, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:715, and where b is greater than or equal to a + 14.	T69086, H09300, H21912, H27306, H27307, H44750, H44751, AA028928, AA031481, AA031460, AA036634, AA040943, AA043170, AA042941, AA047185, AA057349, AA128136, AA224030, AA287364, AA287502, AA493521, AA506405, AA532934, AA635612, AA635790, AA017240, AA028927, AA043023, AA084506, AA126989, AA653687, A1040204, A1095872
841287	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 560 of SEQ ID NO:716, b is an integer of 15 to 574, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:716, and where b is greater than or equal to a + 14.	
841288	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 833 of SEQ ID NO:717, b is an integer of 15 to	

	847, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:717, and where b is greater than or equal to a + 14.	
841291	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2072 of SEQ ID NO:718, b is an integer of 15 to 2086, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:718, and where b is greater than or equal to a + 14.	
841292	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2404 of SEQ ID NO:719, b is an integer of 15 to 2418, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:719, and where b is greater than or equal to a + 14.	
841294	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2527 of SEQ ID NO:720, b is an integer of 15 to 2541, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:720, and where b is greater than or equal to a + 14.	
841296	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2157 of SEQ ID NO:721, b is an integer of 15 to 2171, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:721, and where b is greater than or equal to a + 14.	
841298	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1874 of SEQ ID NO:722, b is an integer of 15 to 1888, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:722, and where b is greater than or equal to a + 14.	
841301	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 966 of SEQ ID NO:723, b is an integer of 15 to 980, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:723, and where b is greater than or equal to a + 14.	T64693, R51679, R56608, H47224, N50001, N79401, W19677, AA143155, H59350, H69073, AA580509, AA487750, AA626464, T10911, T11398, T18502, T18605, T61708, F00905, F01050, F00254, F01055, F01138
841303	Preferably excluded from the present invention are	T80083, R18593, R24742, R27700.



	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1798 of SEQ ID NO:724, b is an integer of 15 to 1812, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:724, and where b is greater than or equal to a + 14.	R38770, R43007, R43007, H15446, H15504, H22797, H23005, H24923, N94968, W30841, W39757, W40248, W84533, AA033611, AA127942, AA127976, AA132110, AA148952, AA148953, AA513119, AA524721, AA551707, AA564773, AA662707, AA814997, AA910847, AA927433, AA886610, W05640, W19569, W22703, W39296, C04698, AA096287, C75085, AA704257, A1032787, A1075657, A1086246, F04646, F08424, F00247
841304	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 960 of SEQ ID NO:725, b is an integer of 15 to 974, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:725, and where b is greater than or equal to a + 14.	
841305	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1494 of SEQ ID NO:726, b is an integer of 15 to 1508, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:726, and where b is greater than or equal to a + 14.	
841309	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1990 of SEQ ID NO:727, b is an integer of 15 to 2004, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:727, and where b is greater than or equal to a + 14.	R62724, H42483, H71117, H71118, N92184, N94614, W39691, W45047, W49839, AA046636, AA046775, AA047446, AA047503, AA160181, AA488796, AA741383, AA746409, AA811149, AA833797, AA946892, AA999767, AA249075, AA248881, AA451825, AA454157, AA628416, AA846238, A1004357
841314	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1456 of SEQ ID NO:728, b is an integer of 15 to 1470, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:728, and where b is greater than or equal to a + 14.	
841316	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1741 of SEQ ID NO:729, b is an integer of 15 to 1755, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:729, and where b is greater than or equal to a +	

	14.	
841318	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 423 of SEQ ID NO:730, b is an integer of 15 to 437, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:730, and where b is greater than or equal to a + 14.	
841321	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3649 of SEQ ID NO:731, b is an integer of 15 to 3663, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:731, and where b is greater than or equal to a + 14.	
841324	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2003 of SEQ ID NO:732, b is an integer of 15 to 2017, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:732, and where b is greater than or equal to a + 14.	T96831, AA258405, AA258750, H61868, AA828983, AA447894, T96832
841326	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1990 of SEQ ID NO:733, b is an integer of 15 to 2004, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:733, and where b is greater than or equal to a + 14.	T67169, T67170, R13400, R25161, R40914, R81373, H03937, N32627, N46428, N47847, N99904, W25263, W56840, W60329, W86618, W86691, AA062970, AA082457, AA100373, AA101448, AA126274, AA134708, AA150508, AA156712, AA157068, AA156974, AA165009, AA171491, AA171862, AA179767, AA180187, AA180497, AA179780, AA180441, AA187010, AA190353, AA195448, AA227391, AA258327, AA258536, AA262632, AA489087, AA489151, AA503664, AA523741, AA582440, AA588337, AA621830, AA621902, AA640554, AA568289, AA744568, AA761881, AA827997, AA847455, AA913189, AA913652, AA974509, U46229, N84275, N85488, N87880, AA641297, C21410, AA091107, AA095442, AA209417, AA219739, AA599903, AA676460, AA677610, AA678785, AA707112, AA725266, AA757097, AA779171, AA779610, AA852239, AA773175, AA993290, AI023440, AI026810, AI039755, AI082013, AI089353, AA773895
841328	Preferably excluded from the present invention are one or more polynucleotides comprising a	R93165, R93258, AA115956, AA251714, AA206198, AA676321

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1114 of SEQ ID NO:734, b is an integer of 15 to 1128, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:734, and where b is greater than or equal to a + 14.	
841329	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 758 of SEQ ID NO:735, b is an integer of 15 to 772, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:735, and where b is greater than or equal to a + 14.	
841330	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1085 of SEQ ID NO:736, b is an integer of 15 to 1099, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:736, and where b is greater than or equal to a + 14.	R22883, R66728, R78688, H95005, H95113, N27178, N39923, AA037201, AA991171, U69556, AA913589, AI085980
841333	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3205 of SEQ ID NO:737, b is an integer of 15 to 3219, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:737, and where b is greater than or equal to a + 14.	T59818, T59682, R12623, R20524, R21444, R35122, R20524, R64024, H89257, N93515, W21251, W33070, W35419, W96447, W96544, AA039907, AA043958, AA043824, AA045684, AA045685, AA088865, AA099890, AA126585, AA127996, AA128092, AA176159, AA491962, AA595337, AA610623, AA668991, AA688420, AA765329, AA768238, AA831102, AA908487, D81709, N89092, C02635, C04695, AA416971, AA469921, AA598468, AA634649, AA939133, AA995031, AI082151, AI123086, T19281
841334	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 835 of SEQ ID NO:738, b is an integer of 15 to 849, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:738, and where b is greater than or equal to a + 14.	
841335	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2055 of SEQ ID NO:739, b is an integer of 15 to 2069, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:739, and where b is greater than or equal to a + 14.	R22949, R23055, R78445, W19388, AA126774, AA133979, AA173276, AA210721, AA210826, AA287324, AA287338, AA504314, AA688155, AA829651, AA836121, AA934545, AI004681, AA205833, AA628867, AI028632, AI026835, AI075920
841336	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1553 of SEQ ID NO:740, b is an integer of 15 to 1567, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:740, and where b is greater than or equal to a + 14.	
841337	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2815 of SEQ ID NO:741, b is an integer of 15 to 2829, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:741, and where b is greater than or equal to a + 14.	
841339	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 912 of SEQ ID NO:742, b is an integer of 15 to 926, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:742, and where b is greater than or equal to a + 14.	R05977, W07729, W85962
841340	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1003 of SEQ ID NO:743, b is an integer of 15 to 1017, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:743, and where b is greater than or equal to a + 14.	T87162, T87245, R83644, H65997, W86660, W87319, AA279035, Z25793
841341	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 347 of SEQ ID NO:744, b is an integer of 15 to 361, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:744, and where b is greater than or equal to a + 14.	
841342	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1922 of SEQ ID NO:745, b is an integer of 15 to 1936, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:745, and where b is greater than or equal to a + 14.	T61211, R31792, R31806, R31842, R31858, AA463633, AA279178, AA279190, AA419400, AA482006, AA521039, AA528684, D80048, AA649649, AA651768, AA652075, AA652129, AA293205, AA293206, AA443179, AA936343
841343	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1605 of SEQ ID NO:746, b is an integer of 15 to 1619, where both a and b correspond to the	T72227, T92679, R30797, H88591, H97509, N22238, N28360, AA045341, AA045429, AA054480, AA058517, AA085747, AA111873, AA112181, AA128375, AA146828, AA146642, AA169595, AA194346,

	positions of nucleotide residues shown in SEQ ID NO:746, and where b is greater than or equal to $a + 14$ .	AA194443, AA425051, AA491535, AA491727, AA553943, AA603289, AA604115, AA618399, AA631253, AA632743, AA640345, AA565849, AA657551, AA657552, AA747335, AA888284, AA903805, AA903460, AA932251, AA932650, AI074492, W26992, W27525, AA092612, AA093936, AA095079, AA495989, AA844221, AA845438, AA897210, AA928087, AA970794, AI083509, F04554, F00612
841347	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 478 of SEQ ID NO:747, b is an integer of 15 to 492, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:747, and where b is greater than or equal to $a + 14$ .	R14800, R25047, R59757, W23811, Z42261
841352	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 589 of SEQ ID NO:748, b is an integer of 15 to 603, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:748, and where b is greater than or equal to $a + 14$ .	T39621, T47602, T47603, T50214, T50262, T56171, T59994, N69976, N70656, N92997, N98578, W19319, W21208, W25470, W38523, W79772, W79108, N90073, AA082281, AA083720, AA102538, AA111985, AA130519, AA130518, AA131208, AA155889, AA156193, AA157132, AA157188, AA159333, AA159346, AA159404, AA159443, AA166964, AA167042, AA425520, AA228398, AA228399, AA230245, AA420475, AA470507, AA470518, AA470554, AA470564, AA470784, AA480624, AA482721, AA483943, AA484448, AA492057, AA492060, AA501534, AA501688, AA501705, AA502485, AA503438, AA507807, AA522865, AA523150, AA523460, AA525078, AA531038, AA532886, AA534182, AA535479, AA541295, AA548431, AA559139, AA558899, AA559895, F16130, F17508, AA582864, AA582977, AA594817, AA600752, AA602218, AA603293, AA603440, AA614252, AA614593, AA627143, AA631240, AA639097, AA640665, AA569026, AA569795, AA573527, AA578708, AA578892, AA579475, AA580548, AA568421, AA654902, AA655027, AA657423, AA657485, AA657617, AA657745, AA657873, AA658089, AA659338, AA661580, AA662328, AA662945, AA664742, AA714342, AA721063, AA729626, AA729804, AA730697, AA737143, AA746051.

		AA814722. AA826140. AA838575. AA856900. AA857814. AA876960. AA879008. AA879230. AA886873. AA887104. AA888489. AA908834. AA922670. AA907193. AA931585. AA939179. AA969542. AA978087. AA988995. AI000230. AI002473. AI056486. AI066507. D45301. AI089666. AI094699. N84532. N84765. N86425. N89209. C14372. C14508. C14515. C14530. C14555. C14605. C14770. C14788. C14791. AA640945. C14863. C14868. AA090649. C14935. C15107. C15223. C15471. C15682. C15775. C15870. C15930. C15935. AA131294. AA643297. AA643298. AA643790. AA650598. AA652545. AA653802. AA653817. AA216075. AA216113. AA216340. AA249201. F20411. F20721. AA457776. AA478848. AA478850. AA479946. AA489323. AA609264. AA625634. AA669489. AA457581. F22821. AA845104. T25813. T26333. AA968927. AI080006. AI080259. D19689. T50162. T59495. F13766. AA694377
841353	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2031 of SEQ ID NO:749, b is an integer of 15 to 2045, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:749, and where b is greater than or equal to a + 14.	N70887. N80736. W06893. W07533. W86227. W86228. AA101268. AA877981. D79871. D81890. AA206735. AA205181. AA205255. AA205303. AA447456. AA454967. AA454966. AA778336. AA970143. T18602. D21013. Z38951. Z45683. T27468. T27472. F06030. F04572
841354	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1130 of SEQ ID NO:750, b is an integer of 15 to 1144, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:750, and where b is greater than or equal to a + 14.	H08639. W86219. AA136665. AA136781. AA256507. AA256508. AA603334. AA830237. AA978040. AA987352. AA733094. T10254. Z40940
841360	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1584 of SEQ ID NO:751, b is an integer of 15 to 1598, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:751, and where b is greater than or equal to a + 14.	
841366	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1471 of SEQ ID NO:752, b is an integer of 15 to 1485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:752, and where b is greater than or equal to a + 14.	
841405	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1742 of SEQ ID NO:753, b is an integer of 15 to 1756, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:753, and where b is greater than or equal to a + 14.	
841526	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1781 of SEQ ID NO:754, b is an integer of 15 to 1795, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:754, and where b is greater than or equal to a + 14.	
841712	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1266 of SEQ ID NO:755, b is an integer of 15 to 1280, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:755, and where b is greater than or equal to a + 14.	
841860	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3651 of SEQ ID NO:756, b is an integer of 15 to 3665, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:756, and where b is greater than or equal to a + 14.	
842042	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1207 of SEQ ID NO:757, b is an integer of 15 to 1221, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:757, and where b is greater than or equal to a + 14.	R27775, R80938, R81040, H25849, H30556, H39898, H43685, H84621, H85342, H85863, H97623, N20020, N24066, N27150, N34137, N74869, AA013261, AA018222, AA056554, AA075594, AA111995, AA176737, AA196064, AA514335, AA731163, AA732094, AA769189, AA877155, AA887521, AA887647, AA915962, AI017806, C03891, AA648526, AA411503, AA890618, T03509, T11362, F00065
842453	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 617 of SEQ ID NO:758, b is an integer of 15 to 631, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:758, and where b is greater than or equal to a + 14.	
842635	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2482 of SEQ ID NO:759, b is an integer of 15 to 2496, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:759, and where b is greater than or equal to a + 14.	
842927	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2034 of SEQ ID NO:760, b is an integer of 15 to 2048, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:760, and where b is greater than or equal to a + 14.	R09931, T99454, R02759, R86215, H59062, AA193428, AA193451, AA235140, Z45646
842988	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1743 of SEQ ID NO:761, b is an integer of 15 to 1757, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:761, and where b is greater than or equal to a + 14.	R18558, R33656, R33770, R41425, R41425, R62291, R62292, H00771, H03451, H03535, H11769, H12026, H16764, H16873, H25402, H25403, H25761, H25802, H26331, N27708, N33053, N35107, N36527, N48776, N62848, N77755, W48862, W48734, AA016281, AA040052, AA045034, AA151597, AA149477, AA150284, AA150386, AA421931, AA458926, AA805628, AA831459, AA862368, AA946706, AI017010, D80611, D80610, D79660, Z78342, C21502, AA428166, AA446595, AA452707, AA718983, AA722005, AA861846, AI025497, AI051843, Z24971, Z28673, Z40541, Z44707
843080	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 4434 of SEQ ID NO:762, b is an integer of 15 to 4448, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:762, and where b is greater than or equal to a + 14.	
843237	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2876 of SEQ ID NO:763, b is an integer of 15 to 2890, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID	



	NO:763, and where b is greater than or equal to a + 14.	
843381	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1689 of SEQ ID NO:764, b is an integer of 15 to 1703, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:764, and where b is greater than or equal to a + 14.	
843718	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 248 of SEQ ID NO:765, b is an integer of 15 to 262, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:765, and where b is greater than or equal to a + 14.	
843823	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 3058 of SEQ ID NO:766, b is an integer of 15 to 3072, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:766, and where b is greater than or equal to a + 14.	
844056	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1307 of SEQ ID NO:767, b is an integer of 15 to 1321, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:767, and where b is greater than or equal to a + 14.	
844325	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1518 of SEQ ID NO:768, b is an integer of 15 to 1532, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:768, and where b is greater than or equal to a + 14.	H13033, H19108, W17353
844344	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2555 of SEQ ID NO:769, b is an integer of 15 to 2569, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:769, and where b is greater than or equal to a + 14.	
844368	Preferably excluded from the present invention are one or more polynucleotides comprising a	

	nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1623 of SEQ ID NO:770, b is an integer of 15 to 1637, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:770, and where b is greater than or equal to a + 14.	
844408	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2471 of SEQ ID NO:771, b is an integer of 15 to 2485, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:771, and where b is greater than or equal to a + 14.	R25739, R25848, R26585, R26669, R38347, R43382, R43382, R82340, R82389, H22162, H22213, H86274, H86550, H86638, N48320, N49046, N73714, AA019818, AA122109, AA152348, AA152349, AA158712, H86273, AA595813, AA612911, AA995417, C04219, AA018291, AA442061, AA442163, AA724417, AA923788, T03807, A1038239, A1051425, Z39949, F03166, F06863, F06899, F10884
844508	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 418 of SEQ ID NO:772, b is an integer of 15 to 432, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:772, and where b is greater than or equal to a + 14.	AA043997
844867	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1034 of SEQ ID NO:773, b is an integer of 15 to 1048, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:773, and where b is greater than or equal to a + 14.	R23270, R24465, H26326, N67923, AA181941, AA187906, AA687695, AA740438, AA879229, D81116, D81140
845000	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1005 of SEQ ID NO:774, b is an integer of 15 to 1019, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:774, and where b is greater than or equal to a + 14.	R22590, H92298, W04657, W31581, W37780, W39080
845281	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 2234 of SEQ ID NO:775, b is an integer of 15 to 2248, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:775, and where b is greater than or equal to a + 14.	T92139, T93566, T94885, T94933, R15017, R17377, R25556, R25791, R26489, R26511, R46713, R46790, R53266, R41457, R46790, R46713, R95961, R95995, R96764, R97692, H56545, H89870, H89871, H89871, N22103, N39443, N45521, N48555, N67524, N67561, N75299, N75567, N75882, W04741, W05590, W57992, W58076, AA001138, AA001282, AA001943, AA001919, AA027274, AA029603, AA082792.

		AA102442. AA101126. AA150932. AA150901. AA176661. AA176888. AA223622. AA461513. AA177059. AA229768. AA230089. AA493436. AA516126. AA528397. AA551566. AA583433. AA610274. AA613338. AA665090. AA744004. AA744054. AA770662. AA829788. AA865467. AA864190. AA878328. AA922466. AA932042. AA933800. AA935845. AA973926. AA977231. AA988822. AA992503. AA995390. AI082412. AI094769. D82171. N85713. W25970. W28703. C00856. C04813. C05281. AA648060. AA650341. AA651636. AA452618. AA453239. AA626597. AA670375. AA679935. AA722603. AA770004. AA846222. AA890020. AA927073. AA992606. AI034036. AI056096. T16991. T23523. T19071. F01728. F02334. F05468. F06081. F04719. F08503
845288	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1591 of SEQ ID NO:776. b is an integer of 15 to 1605, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:776, and where b is greater than or equal to a + 14.	
845750	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1794 of SEQ ID NO:777. b is an integer of 15 to 1808, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:777, and where b is greater than or equal to a + 14.	T54633, T54715, T59162. T59200, T65736. T65810. R13590. R71878. H71816, H71817. H75311, H78458. H93320, H93493. N49894, N49998. N79774. N93610. W07272. W25098, W25505, W79872, W80977, W81080, AA010657, AA010658, AA024456, AA024672, AA053380. AA053095. AA148051, AA196637, AA196919, AA223159, AA234295, AA262985, AA425287, AA425492, AA551815, AA552317, AA614604, AA617675, AA639422, AA570121, AA568154, AA847251, AA983567. AI015662. C00349, N87765, C02759. C03904. C04889. C05299, C05572. AA248273, AA290679. AA402015, AA402941, AA411366. AA411367, AA411431, AA411547. AA481876. AA482058. AI032553. AI038761. AI077405. AI088638, T16907, T16906. D31160, D31471. F02456. F02921. F02975. F06184. F06650
845809	Preferably excluded from the present invention are	

	one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1470 of SEQ ID NO:778, b is an integer of 15 to 1484, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:778, and where b is greater than or equal to a + 14.	
846077	Preferably excluded from the present invention are one or more polynucleotides comprising a nucleotide sequence described by the general formula of a-b, where a is any integer between 1 to 1329 of SEQ ID NO:779, b is an integer of 15 to 1343, where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:779, and where b is greater than or equal to a + 14.	

***Polynucleotide and Polypeptide Variants***

The present invention is directed to variants of the polynucleotide sequence disclosed in SEQ ID NO:X or the complementary strand thereto, and/or the cDNA sequence contained in a cDNA clone contained in the deposit.

5       The present invention also encompasses variants of the prostate and prostate cancer polypeptide sequence disclosed in SEQ ID NO:Y, a polypeptide sequence encoded by the polynucleotide sequence in SEQ ID NO:X, and/or a polypeptide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

10       "Variant" refers to a polynucleotide or polypeptide differing from the polynucleotide or polypeptide of the present invention, but retaining essential properties thereof. Generally, variants are overall closely similar, and, in many regions, identical to the polynucleotide or polypeptide of the present invention.

15       The present invention is also directed to nucleic acid molecules which comprise, or alternatively consist of, a nucleotide sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100%, identical to, for example, the nucleotide coding sequence in SEQ ID NO:X or the complementary strand thereto, the nucleotide coding sequence of the related cDNA contained in a deposited library or the complementary strand thereto, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA in the related cDNA contained in a deposited library, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polypeptides encoded by these nucleic acid molecules are also encompassed by the invention. In another embodiment, the invention encompasses nucleic acid molecules which comprise or alternatively consist of, 25 polynucleotide which hybridizes under stringent hybridization conditions, or alternatively, under low stringency conditions, to the nucleotide coding sequence in SEQ ID NO:X, the nucleotide coding sequence of the related cDNA clone contained in a deposited library, a nucleotide sequence encoding the polypeptide of SEQ ID NO:Y, a nucleotide sequence encoding a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a nucleotide sequence encoding the polypeptide encoded by the cDNA in the related cDNA clone contained in a deposited library, and/or polynucleotide fragments of any of these nucleic acid molecules (e.g., those fragments described herein). Polynucleotides which 30

hybridize to the complement of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

The present invention is also directed to polypeptides which comprise, or alternatively consist of, an amino acid sequence which is at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to, for example, the polypeptide sequence shown in SEQ ID NO:Y, a polypeptide sequence encoded by the nucleotide sequence in SEQ ID NO:X, a polypeptide sequence encoded by the cDNA in the related cDNA clone contained in a deposited library, and/or polypeptide fragments of any of these polypeptides (e.g., those fragments described herein). Polynucleotides which hybridize to the complement of the nucleic acid molecules encoding these polypeptides under stringent hybridization conditions, or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides.

By a nucleic acid having a nucleotide sequence at least, for example, 95% "identical" to a reference nucleotide sequence of the present invention, it is intended that the nucleotide sequence of the nucleic acid is identical to the reference sequence except that the nucleotide sequence may include up to five point mutations per each 100 nucleotides of the reference nucleotide sequence encoding the polypeptide. In other words, to obtain a nucleic acid having a nucleotide sequence at least 95% identical to a reference nucleotide sequence, up to 5% of the nucleotides in the reference sequence may be deleted or substituted with another nucleotide, or a number of nucleotides up to 5% of the total nucleotides in the reference sequence may be inserted into the reference sequence. The query sequence may be, for example, an entire sequence referred to in Table 1, an ORF (open reading frame), or any fragment specified as described herein.

As a practical matter, whether any particular nucleic acid molecule or polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to a nucleotide sequence of the present invention can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci. 6:237-245 (1990)). In a sequence alignment the query and subject sequences are both DNA sequences. An RNA sequence can be

compared by converting U's to T's. The result of said global sequence alignment is in percent identity. Preferred parameters used in a FASTDB alignment of DNA sequences to calculate percent identity are: Matrix=Unitary, k-tuple=4. Mismatch Penalty=1, Joining Penalty=30. Randomization Group Length=0. Cutoff Score=1. Gap Penalty=5. Gap Size  
5 Penalty 0.05. Window Size=500 or the length of the subject nucleotide sequence, whichever is shorter.

If the subject sequence is shorter than the query sequence because of 5' or 3' deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for 5' and 3' truncations of the  
10 subject sequence when calculating percent identity. For subject sequences truncated at the 5' or 3' ends, relative to the query sequence, the percent identity is corrected by calculating the number of bases of the query sequence that are 5' and 3' of the subject sequence, which are not matched/aligned, as a percent of the total bases of the query sequence. Whether a nucleotide is matched/aligned is determined by results of the FASTDB sequence alignment.  
15 This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This corrected score is what is used for the purposes of the present invention. Only bases outside the 5' and 3' bases of the subject sequence, as displayed by the FASTDB alignment, which are not matched/aligned with the query sequence, are calculated for the purposes of  
20 manually adjusting the percent identity score.

For example, a 90 base subject sequence is aligned to a 100 base query sequence to determine percent identity. The deletions occur at the 5' end of the subject sequence and therefore, the FASTDB alignment does not show a matched/alignment of the first 10 bases at 5' end. The 10 unpaired bases represent 10% of the sequence (number of bases at the 5' and  
25 3' ends not matched/total number of bases in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 bases were perfectly matched the final percent identity would be 90%. In another example, a 90 base subject sequence is compared with a 100 base query sequence. This time the deletions are internal deletions so that there are no bases on the 5' or 3' of the subject sequence which  
30 are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only bases 5' and 3' of the subject sequence which are not matched/aligned with the query sequence are manually corrected for. No other

manual corrections are to made for the purposes of the present invention.

By a polypeptide having an amino acid sequence at least, for example, 95% "identical" to a query amino acid sequence of the present invention, it is intended that the amino acid sequence of the subject polypeptide is identical to the query sequence except that the subject polypeptide sequence may include up to five amino acid alterations per each 100 amino acids of the query amino acid sequence. In other words, to obtain a polypeptide having an amino acid sequence at least 95% identical to a query amino acid sequence, up to 5% of the amino acid residues in the subject sequence may be inserted, deleted, (indels) or substituted with another amino acid. These alterations of the reference sequence may occur at the amino or carboxy terminal positions of the reference amino acid sequence or anywhere between those terminal positions, interspersed either individually among residues in the reference sequence or in one or more contiguous groups within the reference sequence.

As a practical matter, whether any particular polypeptide is at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to, for instance, the amino acid sequence in SEQ ID NO:Y or a fragment thereof, the amino acid sequence encoded by the nucleotide sequence in SEQ ID NO:X or a fragment thereof, or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library, or a fragment thereof, can be determined conventionally using known computer programs. A preferred method for determining the best overall match between a query sequence (a sequence of the present invention) and a subject sequence, also referred to as a global sequence alignment, can be determined using the FASTDB computer program based on the algorithm of Brutlag et al. (Comp. App. Biosci.6:237- 245(1990)). In a sequence alignment the query and subject sequences are either both nucleotide sequences or both amino acid sequences. The result of said global sequence alignment is in percent identity. Preferred parameters used in a FASTDB amino acid alignment are: Matrix=PAM 0, k-tuple=2, Mismatch Penalty=1, Joining Penalty=20, Randomization Group Length=0, Cutoff Score=1, Window Size=sequence length, Gap Penalty=5, Gap Size Penalty=0.05, Window Size=500 or the length of the subject amino acid sequence, whichever is shorter.

If the subject sequence is shorter than the query sequence due to N- or C-terminal deletions, not because of internal deletions, a manual correction must be made to the results. This is because the FASTDB program does not account for N- and C-terminal truncations of the subject sequence when calculating global percent identity. For subject sequences



truncated at the N- and C-termini. relative to the query sequence. the percent identity is corrected by calculating the number of residues of the query sequence that are N- and C-terminal of the subject sequence, which are not matched/aligned with a corresponding subject residue. as a percent of the total bases of the query sequence. Whether a residue is matched/aligned is determined by results of the FASTDB sequence alignment. This percentage is then subtracted from the percent identity, calculated by the above FASTDB program using the specified parameters, to arrive at a final percent identity score. This final percent identity score is what is used for the purposes of the present invention. Only residues to the N- and C-termini of the subject sequence, which are not matched/aligned with the query sequence. are considered for the purposes of manually adjusting the percent identity score. That is, only query residue positions outside the farthest N- and C- terminal residues of the subject sequence.

For example, a 90 amino acid residue subject sequence is aligned with a 100 residue query sequence to determine percent identity. The deletion occurs at the N-terminus of the subject sequence and therefore, the FASTDB alignment does not show a matching/alignment of the first 10 residues at the N-terminus. The 10 unpaired residues represent 10% of the sequence (number of residues at the N- and C- termini not matched/total number of residues in the query sequence) so 10% is subtracted from the percent identity score calculated by the FASTDB program. If the remaining 90 residues were perfectly matched the final percent identity would be 90%. In another example, a 90 residue subject sequence is compared with a 100 residue query sequence. This time the deletions are internal deletions so there are no residues at the N- or C-termini of the subject sequence which are not matched/aligned with the query. In this case the percent identity calculated by FASTDB is not manually corrected. Once again, only residue positions outside the N- and C-terminal ends of the subject sequence, as displayed in the FASTDB alignment, which are not matched/aligned with the query sequence are manually corrected for. No other manual corrections are to made for the purposes of the present invention.

The variants may contain alterations in the coding regions, non-coding regions, or both. Especially preferred are polynucleotide variants containing alterations which produce silent substitutions, additions, or deletions, but do not alter the properties or activities of the encoded polypeptide. Nucleotide variants produced by silent substitutions due to the degeneracy of the genetic code are preferred. Moreover, variants in which less than 50, less

than 40, less than 30, less than 20, less than 10, or 5-50, 5-25, 5-10, 1-5, or 1-2 amino acids are substituted, deleted, or added in any combination are also preferred. Polynucleotide variants can be produced for a variety of reasons, e.g., to optimize codon expression for a particular host (change codons in the human mRNA to those preferred by a bacterial host such as *E. coli*).

Naturally occurring variants are called "allelic variants," and refer to one of several alternate forms of a gene occupying a given locus on a chromosome of an organism. (Genes II, Lewin, B., ed., John Wiley & Sons, New York (1985).) These allelic variants can vary at either the polynucleotide and/or polypeptide level and are included in the present invention. Alternatively, non-naturally occurring variants may be produced by mutagenesis techniques or by direct synthesis.

Using known methods of protein engineering and recombinant DNA technology, variants may be generated to improve or alter the characteristics of the polypeptides of the present invention. For instance, as discussed herein, one or more amino acids can be deleted from the N-terminus or C-terminus of the polypeptide of the present invention without substantial loss of biological function. The authors of Ron et al., *J. Biol. Chem.* 268: 2984-2988 (1993), reported variant KGF proteins having heparin binding activity even after deleting 3, 8, or 27 amino-terminal amino acid residues. Similarly, Interferon gamma exhibited up to ten times higher activity after deleting 8-10 amino acid residues from the carboxy terminus of this protein. (Dobeli et al., *J. Biotechnology* 7:199-216 (1988).)

Moreover, ample evidence demonstrates that variants often retain a biological activity similar to that of the naturally occurring protein. For example, Gayle and coworkers (*J. Biol. Chem.* 268:22105-22111 (1993)) conducted extensive mutational analysis of human cytokine IL-1a. They used random mutagenesis to generate over 3,500 individual IL-1a mutants that averaged 2.5 amino acid changes per variant over the entire length of the molecule. Multiple mutations were examined at every possible amino acid position. The investigators found that "[m]ost of the molecule could be altered with little effect on either [binding or biological activity]." (See, Abstract.) In fact, only 23 unique amino acid sequences, out of more than 3,500 nucleotide sequences examined, produced a protein that significantly differed in activity from wild-type.

Furthermore, as discussed herein, even if deleting one or more amino acids from the N-terminus or C-terminus of a polypeptide results in modification or loss of one or more

biological functions. other biological activities may still be retained. For example, the ability of a deletion variant to induce and/or to bind antibodies which recognize the secreted form will likely be retained when less than the majority of the residues of the secreted form are removed from the N-terminus or C-terminus. Whether a particular polypeptide lacking N- or C-terminal residues of a protein retains such immunogenic activities can readily be determined by routine methods described herein and otherwise known in the art.

Thus, the invention further includes polypeptide variants which show a functional activity (e.g., biological activity) of the polypeptide of the invention of which they are a variant. Such variants include deletions, insertions, inversions, repeats, and substitutions selected according to general rules known in the art so as have little effect on activity.

The present application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein or fragments thereof, (e.g., including but not limited to fragments encoding a polypeptide having the amino acid sequence of an N and/or C terminal deletion), irrespective of whether they encode a polypeptide having functional activity. This is because even where a particular nucleic acid molecule does not encode a polypeptide having functional activity, one of skill in the art would still know how to use the nucleic acid molecule, for instance, as a hybridization probe or a polymerase chain reaction (PCR) primer. Uses of the nucleic acid molecules of the present invention that do not encode a polypeptide having functional activity include, inter alia, (1) isolating a gene or allelic or splice variants thereof in a cDNA library; (2) in situ hybridization (e.g., "FISH") to metaphase chromosomal spreads to provide precise chromosomal location of the gene, as described in Verma et al., Human Chromosomes: A Manual of Basic Techniques, Pergamon Press, New York (1988); and (3) Northern Blot analysis for detecting mRNA expression in specific tissues.

Preferred, however, are nucleic acid molecules having sequences at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99% or 100% identical to the nucleic acid sequences disclosed herein, which do, in fact, encode a polypeptide having a functional activity of a polypeptide of the invention.

Of course, due to the degeneracy of the genetic code, one of ordinary skill in the art will immediately recognize that a large number of the nucleic acid molecules having a sequence at least 80%, 85%, 90%, 95%, 96%, 97%, 98%, 99%, or 100% identical to, for example, the nucleic acid sequence of the cDNA in the related cDNA clone contained in a

deposited library. the nucleic acid sequence referred to in Table 1 (SEQ ID NO:X), or fragments thereof. will encode polypeptides "having functional activity." In fact, since degenerate variants of any of these nucleotide sequences all encode the same polypeptide, in many instances, this will be clear to the skilled artisan even without performing the above described comparison assay. It will be further recognized in the art that, for such nucleic acid molecules that are not degenerate variants, a reasonable number will also encode a polypeptide having functional activity. This is because the skilled artisan is fully aware of amino acid substitutions that are either less likely or not likely to significantly effect protein function (e.g., replacing one aliphatic amino acid with a second aliphatic amino acid), as further described below.

For example, guidance concerning how to make phenotypically silent amino acid substitutions is provided in Bowie et al., "Deciphering the Message in Protein Sequences: Tolerance to Amino Acid Substitutions," Science 247:1306-1310 (1990), wherein the authors indicate that there are two main strategies for studying the tolerance of an amino acid sequence to change.

The first strategy exploits the tolerance of amino acid substitutions by natural selection during the process of evolution. By comparing amino acid sequences in different species, conserved amino acids can be identified. These conserved amino acids are likely important for protein function. In contrast, the amino acid positions where substitutions have been tolerated by natural selection indicates that these positions are not critical for protein function. Thus, positions tolerating amino acid substitution could be modified while still maintaining biological activity of the protein.

The second strategy uses genetic engineering to introduce amino acid changes at specific positions of a cloned gene to identify regions critical for protein function. For example, site directed mutagenesis or alanine-scanning mutagenesis (introduction of single alanine mutations at every residue in the molecule) can be used. (Cunningham and Wells, Science 244:1081-1085 (1989).) The resulting mutant molecules can then be tested for biological activity.

As the authors state, these two strategies have revealed that proteins are surprisingly tolerant of amino acid substitutions. The authors further indicate which amino acid changes are likely to be permissive at certain amino acid positions in the protein. For example, most buried (within the tertiary structure of the protein) amino acid residues require nonpolar side

chains. whereas few features of surface side chains are generally conserved. Moreover, tolerated conservative amino acid substitutions involve replacement of the aliphatic or hydrophobic amino acids Ala, Val, Leu and Ile; replacement of the hydroxyl residues Ser and Thr; replacement of the acidic residues Asp and Glu; replacement of the amide residues Asn and Gln. replacement of the basic residues Lys, Arg, and His; replacement of the aromatic residues Phe, Tyr, and Trp, and replacement of the small-sized amino acids Ala, Ser, Thr, Met, and Gly. Besides conservative amino acid substitution, variants of the present invention include (i) substitutions with one or more of the non-conserved amino acid residues, where the substituted amino acid residues may or may not be one encoded by the genetic code, or (ii) substitution with one or more of amino acid residues having a substituent group, or (iii) fusion of the mature polypeptide with another compound, such as a compound to increase the stability and/or solubility of the polypeptide (for example, polyethylene glycol), or (iv) fusion of the polypeptide with additional amino acids, such as, for example, an IgG Fc fusion region peptide, or leader or secretory sequence, or a sequence facilitating purification. Such variant polypeptides are deemed to be within the scope of those skilled in the art from the teachings herein.

For example, polypeptide variants containing amino acid substitutions of charged amino acids with other charged or neutral amino acids may produce proteins with improved characteristics, such as less aggregation. Aggregation of pharmaceutical formulations both reduces activity and increases clearance due to the aggregate's immunogenic activity. (Pinckard et al., Clin. Exp. Immunol. 2:331-340 (1967); Robbins et al., Diabetes 36: 838-845 (1987); Cleland et al., Crit. Rev. Therapeutic Drug Carrier Systems 10:307-377 (1993).)

A further embodiment of the invention relates to a polypeptide which comprises the amino acid sequence of a polypeptide having an amino acid sequence which contains at least one amino acid substitution, but not more than 50 amino acid substitutions, even more preferably, not more than 40 amino acid substitutions, still more preferably, not more than 30 amino acid substitutions, and still even more preferably, not more than 20 amino acid substitutions. Of course it is highly preferable for a polypeptide to have an amino acid sequence which comprises the amino acid sequence of a polypeptide of SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X, and/or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library which contains, in order of ever-increasing preference, at least one, but not more than 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1

amino acid substitutions. In specific embodiments, the number of additions, substitutions, and/or deletions in the amino acid sequence of SEQ ID NO:Y or fragments thereof (e.g., the mature form and/or other fragments described herein), an amino acid sequence encoded by SEQ ID NO:X or fragments thereof, and/or the amino acid sequence encoded by the cDNA in the related cDNA clone contained in a deposited library or fragments thereof, is 1-5, 5-10, 5-25, 5-50, 10-50 or 50-150, conservative amino acid substitutions are preferable.

#### *Polynucleotide and Polypeptide Fragments*

The present invention is also directed to polynucleotide fragments of the prostate and prostate cancer polynucleotides (nucleic acids) of the invention. In the present invention, a "polynucleotide fragment" refers, for example, to a polynucleotide having a nucleic acid sequence which: is a portion of the cDNA contained in a deposited cDNA clone; or is a portion of a polynucleotide sequence encoding the polypeptide encoded by the cDNA contained in a deposited cDNA clone; or is a portion of the polynucleotide sequence in SEQ ID NO:X or the complementary strand thereto; or is a polynucleotide sequence encoding a portion of the polypeptide of SEQ ID NO:Y; or is a polynucleotide sequence encoding a portion of a polypeptide encoded by SEQ ID NO:X or the complementary strand thereto. The nucleotide fragments of the invention are preferably at least about 15 nt, and more preferably at least about 20 nt, still more preferably at least about 30 nt, and even more preferably, at least about 40 nt, at least about 50 nt, at least about 75 nt, at least about 100 nt, at least about 125 nt or at least about 150 nt in length. A fragment "at least 20 nt in length," for example, is intended to include 20 or more contiguous bases from, for example, the sequence contained in the cDNA in a related cDNA clone contained in a deposited library, the nucleotide sequence shown in SEQ ID NO:X or the complementary strand thereto. In this context "about" includes the particularly recited value or a value larger or smaller by several (5, 4, 3, 2, or 1) nucleotides. These nucleotide fragments have uses that include, but are not limited to, as diagnostic probes and primers as discussed herein. Of course, larger fragments (e.g., at least 150, 175, 200, 250, 500, 600, 1000, or 2000 nucleotides in length) are also encompassed by the invention.

Moreover, representative examples of polynucleotide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-

400, 401-450, 451-500, 501-550, 551-600, 651-700, 701-750, 751-800, 800-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, and 3551 to the end of SEQ ID NO:X, or the complementary strand thereto. In this context "about" includes the particularly recited range or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a functional activity (e.g., biological activity) of the polypeptide encoded by the polynucleotide of which the sequence is a portion. More preferably, these fragments can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these nucleic acid molecules under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides or fragments.

Moreover, representative examples of polynucleotide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, a sequence from about nucleotide number 1-50, 51-100, 101-150, 151-200, 201-250, 251-300, 301-350, 351-400, 401-450, 451-500, 501-550, 551-600, 651-700, 701-750, 751-800, 800-850, 851-900, 901-950, 951-1000, 1001-1050, 1051-1100, 1101-1150, 1151-1200, 1201-1250, 1251-1300, 1301-1350, 1351-1400, 1401-1450, 1451-1500, 1501-1550, 1551-1600, 1601-1650, 1651-1700, 1701-1750, 1751-1800, 1801-1850, 1851-1900, 1901-1950, 1951-2000, 2001-2050, 2051-2100, 2101-2150, 2151-2200, 2201-2250, 2251-2300, 2301-2350, 2351-2400, 2401-2450, 2451-2500, 2501-2550, 2551-2600, 2601-2650, 2651-2700, 2701-2750, 2751-2800, 2801-2850, 2851-2900, 2901-2950, 2951-3000, 3001-3050, 3051-3100, 3101-3150, 3151-3200, 3201-3250, 3251-3300, 3301-3350, 3351-3400, 3401-3450, 3451-3500, 3501-3550, and 3551 to the end of the cDNA nucleotide sequence contained in the deposited cDNA clone, or the complementary strand thereto. In this context "about" includes the particularly recited range, or a range larger or smaller by several (5, 4, 3, 2, or 1) nucleotides, at either terminus or at both termini. Preferably, these fragments encode a polypeptide which has a

functional activity (e.g., biological activity) of the polypeptide encoded by the cDNA nucleotide sequence contained in the deposited cDNA clone. More preferably, these fragments can be used as probes or primers as discussed herein. Polynucleotides which hybridize to one or more of these fragments under stringent hybridization conditions or alternatively, under lower stringency conditions, are also encompassed by the invention, as are polypeptides encoded by these polynucleotides or fragments.

In the present invention, a "polypeptide fragment" refers to an amino acid sequence which is a portion of that contained in SEQ ID NO:Y, a portion of an amino acid sequence encoded by the polynucleotide sequence of SEQ ID NO:X, and/or encoded by the cDNA contained in the related cDNA clone contained in a deposited library. Protein (polypeptide) fragments may be "free-standing," or comprised within a larger polypeptide of which the fragment forms a part or region, most preferably as a single continuous region. Representative examples of polypeptide fragments of the invention, include, for example, fragments comprising, or alternatively consisting of, an amino acid sequence from about amino acid number 1-20, 21-40, 41-60, 61-80, 81-100, 102-120, 121-140, 141-160, 161-180, 181-200, 201-220, 221-240, 241-260, 261-280, 281-300, 301-320, 321-340, 341-360, 361-380, 381-400, 401-420, 421-440, 441-460, 461-480, 481-500, 501-520, 521-540, 541-560, 561-580, 581-600, 601-620, 621-640, 641-660, 661-680, 681-700, 701-720, 721-740, 741-760, 761-780, 781-800, 801-820, 821-840, 841-860, 861-880, 881-900, 901-920, 921-940, 941-960, 961-980, 981-1000, 1001-1020, 1021-1040, 1041-1060, 1061-1080, 1081-1100, 1101-1120, 1121-1140, 1141-1160, 1161-1180, and 1181 to the end of SEQ ID NO:Y. Moreover, polypeptide fragments of the invention may be at least about 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, or 150 amino acids in length. In this context "about" includes the particularly recited ranges or values, or ranges or values larger or smaller by several (5, 4, 3, 2, or 1) amino acids, at either terminus or at both termini. Polynucleotides encoding these polypeptide fragments are also encompassed by the invention.

Even if deletion of one or more amino acids from the N-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example, the ability of shortened muteins to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptides generally will be retained



when less than the majority of the residues of the complete or mature polypeptide are removed from the N-terminus. Whether a particular polypeptide lacking N-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mut<sup>5</sup>ein with a large number of deleted N-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides composed of as few as six amino acid residues may often evoke an immune response.

Accordingly, polypeptide fragments of the invention include the secreted protein as well as the mature form. Further preferred polypeptide fragments include the secreted protein or the mature form having a continuous series of deleted residues from the amino or the carboxy terminus, or both. For example, any number of amino acids, ranging from 1-60, can be deleted from the amino terminus of either the secreted polypeptide or the mature form. Similarly, any number of amino acids, ranging from 1-30, can be deleted from the carboxy terminus of the secreted protein or mature form. Furthermore, any combination of the above amino and carboxy terminus deletions are preferred. Similarly, polynucleotides encoding these polypeptide fragments are also preferred.

The present invention further provides polypeptides having one or more residues deleted from the amino terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, and/or a polypeptide encoded by the cDNA contained in the related cDNA clone contained in a deposited library). In particular, N-terminal deletions may be described by the general formula m-q, where q is a whole integer representing the total number of amino acid residues in a polypeptide of the invention (e.g., the polypeptide disclosed in SEQ ID NO:Y), and m is defined as any integer ranging from 2 to q-6. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Also as mentioned above, even if deletion of one or more amino acids from the C-terminus of a protein results in modification or loss of one or more biological functions of the protein, other functional activities (e.g., biological activities, ability to multimerize, ability to bind a ligand) may still be retained. For example the ability of the shortened mut<sup>30</sup>ein to induce and/or bind to antibodies which recognize the complete or mature forms of the polypeptide generally will be retained when less than the majority of the residues of the complete or mature polypeptide are removed from the C-terminus. Whether a particular

polypeptide lacking C-terminal residues of a complete polypeptide retains such immunologic activities can readily be determined by routine methods described herein and otherwise known in the art. It is not unlikely that a mutein with a large number of deleted C-terminal amino acid residues may retain some biological or immunogenic activities. In fact, peptides  
5 composed of as few as six amino acid residues may often evoke an immune response.

Accordingly, the present invention further provides polypeptides having one or more residues from the carboxy terminus of the amino acid sequence of a polypeptide disclosed herein (e.g., a polypeptide of SEQ ID NO:Y, a polypeptide encoded by the polynucleotide sequence contained in SEQ ID NO:X, and/or a polypeptide encoded by the cDNA contained  
10 in deposited cDNA clone referenced in Table 1). In particular, C-terminal deletions may be described by the general formula 1-n, where n is any whole integer ranging from 6 to q-1, and where n corresponds to the position of an amino acid residue in a polypeptide of the invention. Polynucleotides encoding these polypeptides are also encompassed by the invention.

15 In addition, any of the above described N- or C-terminal deletions can be combined to produce a N- and C-terminal deleted polypeptide. The invention also provides polypeptides having one or more amino acids deleted from both the amino and the carboxyl termini, which may be described generally as having residues m-n of a polypeptide encoded by SEQ ID NO:X (e.g., including, but not limited to, the preferred polypeptide disclosed as SEQ ID  
20 NO:Y), and/or the cDNA in the related cDNA clone contained in a deposited library, where n and m are integers as described above. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Any polypeptide sequence contained in the polypeptide of SEQ ID NO:Y, encoded by the polynucleotide sequences set forth as SEQ ID NO:X, or encoded by the cDNA in the  
25 related cDNA clone contained in a deposited library may be analyzed to determine certain preferred regions of the polypeptide. For example, the amino acid sequence of a polypeptide encoded by a polynucleotide sequence of SEQ ID NO:X, or the cDNA in a deposited cDNA clone may be analyzed using the default parameters of the DNASTAR computer algorithm (DNASTAR, Inc., 1228 S. Park St., Madison, WI 53715 USA; <http://www.dnastar.com/>).

30 Polypeptide regions that may be routinely obtained using the DNASTAR computer algorithm include, but are not limited to, Garnier-Robson alpha-regions, beta-regions, turn-regions, and coil-regions, Chou-Fasman alpha-regions, beta-regions, and turn-regions,

Kyte-Doolittle hydrophilic regions and hydrophobic regions. Eisenberg alpha- and beta-amphipathic regions. Karplus-Schulz flexible regions. Emini surface-forming regions and Jameson-Wolf regions of high antigenic index. Among highly preferred polynucleotides of the invention in this regard are those that encode polypeptides comprising regions that  
5 combine several structural features, such as several (e.g., 1, 2, 3 or 4) of the features set out above.

Additionally, Kyte-Doolittle hydrophilic regions and hydrophobic regions. Emini surface-forming regions, and Jameson-Wolf regions of high antigenic index (i.e., containing four or more contiguous amino acids having an antigenic index of greater than or equal to  
10 1.5, as identified using the default parameters of the Jameson-Wolf program) can routinely be used to determine polypeptide regions that exhibit a high degree of potential for antigenicity. Regions of high antigenicity are determined from data by DNASTAR analysis by choosing values which represent regions of the polypeptide which are likely to be exposed on the surface of the polypeptide in an environment in which antigen recognition may occur in the  
15 process of initiation of an immune response.

Preferred polypeptide fragments of the invention are fragments comprising, or alternatively consisting of, an amino acid sequence that displays a functional activity of the polypeptide sequence of which the amino acid sequence is a fragment.

By a polypeptide demonstrating a "functional activity" is meant, a polypeptide  
20 capable of displaying one or more known functional activities associated with a full-length (complete) protein of the invention. Such functional activities include, but are not limited to, biological activity, antigenicity [ability to bind (or compete with a polypeptide for binding) to an anti-polypeptide antibody], immunogenicity (ability to generate antibody which binds to a specific polypeptide of the invention), ability to form multimers with polypeptides of the  
25 invention, and ability to bind to a receptor or ligand for a polypeptide.

Other preferred polypeptide fragments are biologically active fragments. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

30 In preferred embodiments, polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the antigenic fragments of the polypeptide of

SEQ ID NO:Y, or portions thereof. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Table 4.

Sequence/ Contig ID	Epitopes
574130	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 941 as residues: Ala-10 to Asp-18, Asp-20 to Cys-27, Cys-44 to Gly-52, Pro-57 to Ser-62, Pro-65 to His-72, Gln-88 to Asn-94, Pro-118 to Thr-127, Pro-129 to Thr-143, Tyr-156 to Tyr-165, Pro-167 to Leu-172, Cys-180 to Asp-185.
637706	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 942 as residues: Arg-1 to Glu-6, Lys-11 to Val-24, Pro-27 to Gln-36, Glu-49 to Gly-54, His-59 to Gly-73, Thr-86 to Ala-97, Pro-104 to Gly-113, Asp-137 to Asp-160, Arg-177 to Asn-195, Leu-203 to Asn-212, Asn-219 to Thr-231, Lys-238 to Tyr-247, Glu-249 to Asn-254, Met-269 to Asp-303, Ser-328 to Ser-336.
684310	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 944 as residues: Ala-13 to Arg-20, Glu-25 to Arg-40.
731016	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 945 as residues: Glv-13 to Leu-20, Glv-40 to Ala-45.
827771	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 946 as residues: Ala-11 to Glu-16.
828193	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 947 as residues: Glv-1 to Glv-9, Ala-15 to Ala-21.
828194	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 948 as residues: Pro-45 to Trp-53.
828199	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 949 as residues: Gly-38 to Ser-44, Leu-123 to Trp-138, His-149 to Pro-154.
828221	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 950 as residues: Lys-32 to Leu-41, Arg-119 to Tyr-124, Pro-197 to Arg-204, Asp-236 to Lys-242, Ala-290 to Tyr-296, Thr-320 to Arg-331, Asp-337 to Val-343, His-358 to Glv-368, Thr-419 to Gln-424.
828235	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 951 as residues: Pro-74 to Arg-82.
828236	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 952 as residues: Lys-10 to Gly-15, Pro-22 to Ser-27, Lys-38 to Glu-63, Lys-74 to Val-87, Met-89 to Glu-123, Lys-130 to Glu-196, Val-201 to Ala-207, Arg-251 to Lys-256, Glu-271 to Arg-279, Pro-317 to Asn-327, Lys-382 to Gln-390, Tyr-409 to Glu-415.
828237	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 953 as residues: Ala-6 to Arg-20, Glu-33 to Lys-40, Gln-45 to Leu-50, Arg-52 to Gln-72, Leu-78 to Gln-94, Gln-105 to Gln-114.
828242	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 955 as residues: Thr-1 to Trp-9, Pro-26 to Ala-32, Gly-58 to Arg-68, Gln-73 to Thr-99, Ala-191 to Asp-196, Glu-225 to Glu-234.
828248	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 957 as residues: Lys-21 to Glu-27, Thr-84 to Asp-89, His-103 to Val-109.
828250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 958 as residues: Glu-106 to Ser-111.
828256	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 959 as residues: Glv-44 to Trp-49, Pro-90 to Ser-95, Tyr-133 to Lys-142, Trp-223 to Glv-242.
828267	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 960 as residues: Pro-1 to His-11, Arg-36 to Gly-52, Arg-62 to Gly-73, Gly-85 to Leu-96, Pro-112 to Gly-117, Ser-130 to Gly-138.
828272	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 962 as residues: Glu-1 to Glv-13, Ser-58 to Phe-65, Thr-118 to Glv-131, Glv-139 to Arg-157.
828273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 963 as residues: Ser-1 to Pro-6, Gln-38 to Arg-43.
828290	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 964 as residues: Trp-61 to Cys-67.

828326	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 965 as residues: Arg-2 to Gln-11, Ala-17 to Ser-24, Arg-45 to Arg-58, Pro-60 to Gly-67, Ser-86 to Thr-92, Asn-143 to Leu-158.
828397	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 966 as residues: Arg-18 to Arg-33.
828405	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 967 as residues: Ser-50 to Leu-57, Ser-88 to Ser-99, Glu-104 to Val-112, Glu-122 to Val-127, Ile-152 to Asp-157.
828461	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 968 as residues: Ala-3 to Ala-16, Leu-25 to Pro-44, Ser-82 to Leu-88, Pro-91 to Arg-99, Pro-110 to Glu-118, Ile-120 to Lys-136, Cys-142 to Leu-149, Glu-156 to Leu-167, Arg-169 to Arg-180, Gly-197 to Pro-212, Arg-269 to Leu-283.
828482	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 969 as residues: Glu-1 to Ser-7.
828491	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 971 as residues: Arg-42 to Asn-48.
828492	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 972 as residues: Pro-28 to Lys-33, Arg-41 to Glu-47.
828494	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 973 as residues: Phe-24 to Val-32, Arg-49 to Val-55, Trp-59 to Glu-68, Leu-72 to Asn-80.
828496	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 974 as residues: Gly-1 to Arg-8, Ser-17 to Arg-22, Arg-41 to Leu-47, Lys-49 to Lys-57, Leu-66 to Arg-73, Glu-94 to Thr-104, Arg-117 to Leu-126, Lys-184 to Asn-193, Glu-197 to Arg-216.
828498	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 975 as residues: Glu-62 to Leu-68, Ile-104 to Ser-111.
828504	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 976 as residues: Ser-14 to Pro-21.
828512	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 978 as residues: Asn-26 to Gln-36, Val-48 to Asp-62, Lys-112 to Ser-123, Val-127 to Phe-132, Phe-139 to Asp-151, Val-158 to Glu-180.
828516	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 979 as residues: Gly-14 to Gly-20, Ala-22 to Ala-33, Arg-83 to Thr-88, Arg-100 to Leu-105, Lys-130 to Lys-141.
828519	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 980 as residues: Gly-7 to Pro-13, His-20 to Ala-25.
828521	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 981 as residues: Asn-13 to His-19, Ser-37 to Arg-45.
828522	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 982 as residues: Lys-12 to Glu-19, Glu-38 to Gly-43, Pro-82 to Lys-93.
828525	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 983 as residues: Pro-23 to Pro-30, Ala-59 to Ser-64, Pro-84 to Thr-93, Pro-135 to Gly-140.
828529	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 984 as residues: Ser-15 to Gln-20, Gln-92 to Phe-113, Thr-141 to Gly-146, Val-153 to Thr-158.
828530	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 985 as residues: Pro-5 to Gln-15, Lys-23 to Leu-32.
828536	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 986 as residues: His-28 to Glu-34.
828537	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 987 as residues: Ile-28 to Leu-33, Gln-42 to Ser-52, Ser-54 to Trp-59.
828539	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 988 as residues: Ala-1 to Leu-9, Ser-19 to Thr-31.
828540	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 989 as residues: Arg-1 to Lys-12, Gly-17 to Ile-23.
828543	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 991 as residues: Ala-13 to Gln-20, Asp-33 to Asn-39.
828544	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 992 as residues: Val-15 to Asp-21.
828551	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 995 as residues:

	Met-12 to Pro-17.
828560	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 998 as residues: Val-8 to Arg-17.
828561	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 999 as residues: Asn-7 to Gly-20, Thr-32 to Trp-37, Arg-57 to Gly-66.
828565	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1000 as residues: Arg-1 to Asn-18.
828566	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1001 as residues: Arg-41 to His-50, Lys-52 to Thr-60.
828567	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1002 as residues: Gln-7 to Cys-12, Pro-20 to Lys-30.
828568	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1003 as residues: Pro-10 to Glu-20, Asn-29 to Trp-37, Ala-44 to Arg-51, Gln-69 to Gly-79.
828570	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1005 as residues: Ser-16 to Leu-24.
828571	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1006 as residues: Leu-1 to Gln-17.
828574	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1007 as residues: Pro-117 to Lys-134, Gln-136 to Trp-143.
828575	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1008 as residues: Lys-6 to Ala-13.
828578	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1010 as residues: Gly-72 to Asp-81, Cys-89 to Gly-100, Lys-107 to Arg-114, Lys-119 to Gln-126, Arg-140 to Ser-160.
828580	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1011 as residues: Pro-1 to Ala-7, Lys-54 to Gln-68, Leu-81 to Gln-93.
828581	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1012 as residues: Glu-13 to Ser-21, Glu-31 to Glu-37, Lys-53 to Ala-60.
828583	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1013 as residues: Gln-1 to Gly-7, Thr-22 to Gly-31.
828585	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1014 as residues: Leu-28 to His-34.
828587	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1015 as residues: Gln-1 to Lys-8, Ser-25 to Phe-38, Thr-79 to Val-90, Arg-118 to Glu-125.
828592	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1017 as residues: Gln-12 to Gln-17, Arg-43 to Gln-49, Lys-62 to Lys-67, Glu-78 to Gly-83.
828594	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1019 as residues: Glu-9 to Gln-18.
828596	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1020 as residues: Thr-1 to His-8.
828597	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1021 as residues: Gln-12 to Trp-17, Asp-83 to Ile-97, Gln-99 to Asp-104, Thr-210 to Ser-216, Arg-279 to Thr-296.
828598	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1022 as residues: Thr-1 to Ser-7.
828601	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1023 as residues: Ile-1 to Trp-10, Thr-32 to Ser-38, Pro-49 to Gly-56, Ser-78 to Arg-83, Phe-113 to Arg-122, Leu-156 to Asp-173.
828605	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1024 as residues: Arg-6 to Pro-12.
828608	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1025 as residues: Arg-52 to Ile-59, Asp-65 to Phe-76, Lys-96 to Leu-102.
828609	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1026 as residues: Gly-29 to Gly-36, Lys-105 to Thr-112, Phe-134 to Asn-145, Pro-182 to Gly-190.
828610	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1027 as residues: Pro-49 to Asp-58, Lys-60 to Ile-66, Ser-68 to Glu-76, Val-95 to Asn-101, Lys-118 to Thr-124.
828617	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1028 as residues:

	Ser-14 to Arg-22, Leu-24 to Cys-30, Pro-35 to Gly-40.
828620	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1029 as residues: Leu-2 to Arg-10, Ala-57 to Lys-64, Lys-81 to Leu-88, Tyr-160 to Pro-169, Met-203 to Asp-216.
828623	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1032 as residues: His-38 to His-44.
828625	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1033 as residues: Ile-19 to Asn-28.
828635	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1035 as residues: Arg-3 to Arg-10.
828637	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1036 as residues: Asp-9 to Cys-15.
828639	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1037 as residues: Pro-13 to His-20.
828645	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1038 as residues: Glu-1 to Gly-10, Lys-18 to Arg-41, Ala-55 to Pro-65.
828648	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1039 as residues: Ala-12 to Asn-20, Pro-23 to Asn-28, Phe-47 to Val-52, Lys-88 to Gly-93, Tyr-113 to Asn-123.
828649	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1040 as residues: Pro-14 to Gln-29.
828651	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1041 as residues: Gly-2 to Lys-13.
828655	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1043 as residues: Val-13 to Trp-27.
828657	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1044 as residues: Glu-20 to Leu-30, Glu-79 to Gly-84, Asp-89 to Trp-96.
828660	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1045 as residues: Pro-37 to Thr-43.
828663	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1046 as residues: Ala-19 to Gly-24.
828666	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1047 as residues: His-54 to Gly-59.
828668	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1048 as residues: Pro-1 to Gly-12, Pro-30 to Leu-48.
828669	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1049 as residues: Pro-2 to Ser-7, Trp-27 to Lys-38.
828671	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1051 as residues: Asp-89 to Ile-94.
828672	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1052 as residues: Lys-16 to Ser-23.
828675	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1053 as residues: Lys-11 to His-16, Ala-26 to Ser-65.
828677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1054 as residues: Pro-7 to Trp-13.
828678	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1055 as residues: Glu-188 to Arg-196.
828679	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1056 as residues: Asn-17 to Lys-23.
828680	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1057 as residues: Pro-7 to Glu-17, Ser-68 to Tyr-85, Ser-94 to Asn-101, Thr-122 to Arg-129, Ser-169 to Val-174.
828681	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1058 as residues: Asp-1 to Asp-19, Arg-27 to Leu-33.
828682	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1059 as residues: Pro-34 to Glu-39, Ala-41 to Gly-47, Glu-100 to Ser-111.
828683	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1060 as residues: Gly-7 to Val-14.
828686	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1061 as residues:



	Pro-15 to Glu-20, Gln-71 to Leu-84, Glu-86 to Ser-96, Glu-116 to Pro-121, Val-176 to Leu-196, Asn-216 to Ala-224.
828687	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1062 as residues: Glu-3 to Ala-13, Ile-22 to Ser-28.
828688	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1063 as residues: Asp-7 to Ala-15, Pro-34 to Ile-60, Gln-110 to Asn-117.
828689	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1064 as residues: Ser-74 to Met-96, Leu-108 to Trp-117, Gly-126 to Gly-131, Glu-161 to Asp-178, Lys-181 to Tyr-191, Arg-196 to Ser-202.
828692	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1065 as residues: Pro-73 to Thr-86, Ser-93 to Val-102, Ala-157 to Lys-162, Thr-169 to Lys-184, Asp-198 to Tyr-211.
828694	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1067 as residues: Thr-1 to Ala-10, Pro-18 to Arg-25, Ala-49 to Leu-56, Ser-104 to Arg-111.
828696	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1068 as residues: Ser-5 to Ser-10.
828699	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1070 as residues: Asp-7 to Val-17, Ala-21 to Ser-26.
828702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1071 as residues: Val-14 to Gly-26, Ser-76 to His-87, Ile-127 to Phe-134, Pro-151 to Asn-157.
828703	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1072 as residues: Cys-58 to Ser-66.
828704	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1073 as residues: Thr-35 to Thr-42.
828706	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1074 as residues: Arg-1 to Glu-13.
828708	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1075 as residues: Asn-17 to Pro-27, Ser-46 to His-51, Leu-53 to Asp-60, Cys-62 to Ile-68.
828711	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1076 as residues: Asp-24 to Phe-31.
828712	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1077 as residues: Ser-44 to Lys-49, Glu-65 to Lys-76.
828713	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1078 as residues: Pro-1 to Asp-6, Arg-13 to Gly-26.
828714	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1079 as residues: Pro-24 to Glu-42, Gln-58 to Asp-64, Gln-80 to His-90, Pro-92 to Asp-103, Tyr-139 to Glu-153, Asp-162 to Asp-180, Glu-189 to Phe-200, Ser-203 to Gln-213, Glu-219 to Gly-224, Lys-227 to Ser-236, Pro-241 to Asn-260, Phe-275 to Ser-281, Phe-305 to Asn-314, Gln-319 to Tyr-329, Thr-341 to Ser-357, Pro-360 to Cys-365, Trp-384 to Phe-398, Gln-401 to Lys-410.
828718	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1081 as residues: Asp-70 to Leu-85, Ser-195 to Arg-205, Arg-262 to Ala-268, Asn-270 to Ala-277.
828728	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1084 as residues: Gly-12 to Val-19, Asp-38 to Gln-55, Gln-84 to Tyr-91, Gln-96 to Asp-102.
828730	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1085 as residues: Gly-142 to Arg-148, Ser-173 to Gln-178, Thr-202 to Ile-207, Leu-276 to Val-282, Pro-321 to Gly-353, Thr-355 to Glu-364, Glu-380 to Lys-385.
828732	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1086 as residues: Leu-8 to Lys-29, Leu-79 to Glu-86, Asn-106 to Trp-113.
828733	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1087 as residues: Lys-26 to Lys-33.
828735	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1088 as residues: Ser-10 to Pro-21, Ser-94 to Ala-111, Ala-125 to Met-142, Pro-144 to Gln-150, Asp-194 to Asn-201, Val-216 to Arg-243.
828740	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1091 as residues: Asn-12 to Leu-21, Leu-23 to Ser-28.
828742	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1092 as residues:

	Ser-149 to Leu-158.
828748	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1093 as residues: Pro-21 to Lys-31, Glu-46 to Thr-52, Cys-93 to Trp-100, Glu-144 to Gln-150, Gln-171 to Ser-180, Pro-205 to Trp-210, Ser-222 to Cys-228.
828752	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1095 as residues: Pro-23 to Gly-28, Ser-34 to Gly-39, Leu-44 to Arg-56, Gln-101 to Leu-112, Leu-119 to Ser-124, Lys-129 to Trp-138.
828753	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1096 as residues: Ile-1 to Gly-44.
828754	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1097 as residues: Leu-21 to Gln-27.
828757	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1098 as residues: Thr-27 to Arg-34, Tyr-40 to Trp-47, Thr-83 to Ser-90.
828761	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1099 as residues: Arg-1 to Gln-19.
828762	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1100 as residues: Phe-1 to Arg-11, Leu-48 to Lys-56.
828764	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1101 as residues: Asp-79 to Arg-84.
828765	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1102 as residues: Ala-5 to Ala-10.
828766	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1103 as residues: Gly-1 to Lys-10, Glu-21 to Leu-27, Ser-38 to Leu-43.
828768	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1105 as residues: Lys-39 to Lys-64.
828770	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1106 as residues: Ser-3 to Tyr-9.
828771	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1107 as residues: Ser-13 to Cys-21.
828772	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1108 as residues: Arg-28 to Asp-34.
828776	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1111 as residues: Pro-6 to Thr-13.
828784	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1118 as residues: Glu-6 to Leu-21, Ala-34 to Ala-40.
828785	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1119 as residues: Arg-53 to Ser-64.
828786	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1120 as residues: Thr-1 to Thr-16, Ser-32 to Lys-39.
828790	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1122 as residues: Pro-13 to Ala-21.
828791	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1123 as residues: Lys-1 to Cys-6.
828792	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1124 as residues: Arg-1 to Thr-7, Gln-12 to Gly-17.
828799	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1128 as residues: Thr-2 to Lys-8, Val-47 to Trp-52.
828802	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1130 as residues: Gly-41 to Met-47, Lys-59 to Arg-72.
828803	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1131 as residues: Arg-8 to Thr-14, Ala-51 to Ser-58, Ser-60 to Ser-79, Leu-97 to His-104.
828804	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1132 as residues: Lys-1 to Pro-12, Asn-43 to Lys-48.
828805	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1133 as residues: Glu-15 to Ser-20, Thr-28 to Arg-39.
828807	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1134 as residues:

	Glu-14 to Lys-19.
828821	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1142 as residues: Cys-9 to Leu-15, His-28 to Gly-36.
828825	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1145 as residues: Pro-38 to Pro-43.
828826	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1146 as residues: Ile-7 to Leu-15, Lys-18 to Ser-36, Thr-66 to Lys-72, Thr-91 to Tyr-97, Val-99 to Cys-106, Glu-154 to Lys-159, Glu-171 to Asn-176, Met-187 to Ser-192, Leu-203 to Gln-212.
828829	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1147 as residues: Ser-52 to Glu-58.
828835	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1150 as residues: Lys-89 to Ser-104.
828838	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1151 as residues: Arg-1 to Arg-11.
828840	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1152 as residues: Gly-32 to Gly-37.
828845	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1153 as residues: Asn-23 to Tyr-34.
828846	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1154 as residues: Ala-40 to Tyr-55, Glu-57 to Asn-66, Glu-74 to Asn-79.
828847	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1155 as residues: Gln-66 to Gly-77, Gly-86 to Ala-93.
828849	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1156 as residues: Arg-16 to Ser-25, Asp-97 to Pro-106, Pro-166 to Leu-176, Glu-271 to Gln-285, Thr-287 to Met-294, Ser-310 to Glu-316, Pro-330 to Gly-338, Phe-400 to Ser-415, Thr-425 to Ser-433, Lys-453 to Pro-469.
828852	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1158 as residues: Val-33 to Ser-39.
828853	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1159 as residues: Pro-25 to Ser-31, Ser-34 to Gly-41.
828857	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1160 as residues: Lys-5 to Leu-10, Ser-20 to Gly-30, Leu-32 to Thr-37.
828861	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1161 as residues: Arg-33 to Phe-38, Arg-59 to Gly-64, Pro-100 to His-121, Arg-144 to Pro-162, Gln-213 to Thr-221, Pro-262 to Trp-268, Ala-292 to Phe-302, Pro-315 to Pro-323.
828866	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1162 as residues: Cys-1 to Gln-6, Gln-79 to Ala-89, Thr-96 to Leu-102.
828872	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1163 as residues: Gly-17 to Leu-40, Ala-47 to Phe-63, Glu-66 to Val-71, Ile-75 to His-92, Glu-112 to Asn-119, Asp-122 to Arg-135, Asn-140 to Phe-152, Asn-160 to Arg-166.
828874	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1164 as residues: Arg-1 to Ala-34, Pro-41 to Pro-47, Pro-49 to Asp-57, Asn-99 to Ala-105, Met-107 to Thr-112, Lys-118 to Ser-135, Glu-145 to Ile-156, Ala-202 to Lys-209, Lys-214 to Ile-220, Ala-224 to Ala-236, Ala-239 to Pro-248, Pro-260 to Lys-270, Lys-275 to Lys-300.
828875	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1165 as residues: Pro-17 to Gly-24, His-31 to Phe-36, Glu-72 to Val-79, Val-99 to Asp-104.
828878	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1167 as residues: Ser-33 to Asp-45, Thr-48 to Glu-53, Lys-70 to Glu-75, Phe-125 to Phe-131, Asp-216 to Ile-223, Met-244 to Thr-252, Asn-272 to Leu-281, Gln-314 to Lys-320, Ala-340 to Ser-348.
828879	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1168 as residues: Ser-1 to Arg-8.
828881	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1169 as residues: Arg-1 to Lys-8, Asp-184 to Gly-190, Pro-269 to Asp-274.
828885	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1170 as residues: Glu-6 to Gly-11, Gln-34 to Ala-41, Val-62 to Gly-69, Val-79 to Glu-92, Pro-95 to Asp-100, Lys-106 to Leu-123, Asp-178 to Asn-185, His-208 to Ser-213, Glu-224 to Val-231, Gly-233 to Lys-

	241. Ser-254 to Ser-265. Phe-279 to Ser-285. Asn-292 to Gly-307. Lys-311 to Gly-324.
828887	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1172 as residues: Ala-1 to Lys-6, Ala-55 to Ser-60, Tyr-65 to Tyr-70, Thr-75 to Pro-84, Ser-106 to Ser-111, Asn-121 to Arg-131, Glu-145 to Pro-150, Pro-156 to His-171, Ser-188 to Leu-196, Asp-231 to His-238, Ser-276 to Arg-281, Arg-298 to Glu-307, Glu-332 to Glu-339, Tyr-355 to Thr-362, Ala-381 to Ser-392, Glu-409 to Val-422.
828891	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1174 as residues: Pro-1 to Glu-18, Gly-26 to Pro-33, Pro-66 to Gly-75, Gln-105 to Val-110, Ser-128 to Pro-134, Glu-182 to Leu-187.
828899	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1175 as residues: His-1 to Arg-11, Ser-40 to Gln-49.
828907	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1176 as residues: Ser-21 to Asp-28, Pro-30 to Cys-38, Arg-98 to His-103, Asn-118 to Ile-136, Ser-153 to Trp-161, Arg-163 to Tyr-172, Thr-174 to Ser-181.
828917	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1179 as residues: His-1 to Gln-22, Thr-27 to Phe-38.
828921	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1180 as residues: Glu-1 to Glu-6.
828922	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1181 as residues: Thr-6 to Ser-21.
828926	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1184 as residues: Gly-108 to Tyr-117.
828928	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1185 as residues: Gln-7 to Trp-13, Pro-46 to Ala-55.
828930	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1186 as residues: Glu-73 to His-79, Gly-105 to Tyr-110, Asp-161 to Asn-166, Lys-187 to Gln-196, Tyr-200 to Leu-206, Glu-222 to Met-229, Ala-252 to Ser-267, Asn-314 to Trp-323, Gly-344 to Asn-352.
828937	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1188 as residues: Met-28 to Lys-33, Asp-40 to Ala-64, Tyr-72 to Lys-85, Thr-124 to Leu-131, Ala-148 to Tyr-155.
828940	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1189 as residues: Pro-23 to Gln-29, Ile-56 to Asn-61, Lys-69 to Lys-75.
828943	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1191 as residues: Val-5 to Gly-11, Gln-26 to Asp-36, Val-93 to Lys-98, Lys-101 to Thr-124, Lys-130 to Asp-141, Thr-163 to Lys-172, Ser-195 to Ala-200, Tyr-210 to Ile-220.
828946	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1192 as residues: Arg-29 to Glu-34, Ala-74 to Leu-79, Ser-88 to Ala-96, Glu-126 to Leu-133, Glu-149 to Pro-156, Pro-177 to Asp-182.
828947	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1193 as residues: Lys-28 to Gly-40.
828956	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1194 as residues: Pro-84 to Asp-94, Ile-99 to Asn-105, Lys-131 to Lys-136, Lys-141 to Asn-146, Lys-153 to His-162, Asp-170 to Arg-179, Gln-248 to Ile-258, Thr-262 to Leu-267, Thr-270 to Phe-279, Arg-294 to Leu-302.
828958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1195 as residues: Cys-14 to Ser-25.
828965	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1196 as residues: Ala-29 to Leu-35, Pro-83 to Val-88.
828969	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1197 as residues: Arg-2 to Gly-8.
828971	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1198 as residues: Glu-53 to Lys-60.
828973	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1199 as residues: Ser-18 to Thr-25, His-177 to Tyr-186.
828980	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1200 as residues: Cys-4 to Glu-15.
828984	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1201 as residues:

	Asn-14 to Lys-19, Asp-55 to Lys-64, Thr-120 to Glu-125, Pro-149 to Gly-154, His-206 to Lys-213, Pro-242 to Arg-249, Met-269 to Glu-279, Arg-281 to Ser-287, Phe-312 to Gly-317, Arg-361 to Ser-368, Glu-374 to Gln-380, Ile-386 to Tyr-391, Glu-412 to Gln-428, Arg-435 to Val-471, Ser-483 to Lys-502, Lys-507 to Glu-517, Lys-519 to Pro-530, Ser-541 to Pro-550, Gly-567 to Lys-589, Glu-593 to Val-613, Lys-616 to Leu-636, Ser-647 to Leu-673, Pro-677 to Glu-689.
828988	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1203 as residues: Asp-60 to Lys-75.
828995	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1205 as residues: Thr-26 to Gly-33, Ser-42 to Ser-53, Pro-73 to Leu-78, Pro-101 to Gly-107, Pro-147 to Ser-157, Pro-168 to Ser-176, Ser-203 to His-208, Ser-216 to Cys-221.
829005	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1207 as residues: Pro-17 to Glu-22, Thr-129 to Lys-137, Asp-164 to Asp-170.
829009	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1208 as residues: Pro-1 to Arg-14, Pro-36 to Arg-54, Arg-61 to His-68, Arg-83 to Ile-92, Ala-95 to Arg-103, Arg-107 to Glu-114.
829012	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1210 as residues: His-6 to Ser-11, Ser-122 to Asn-128, Leu-216 to Asp-221, Ser-323 to His-328.
829013	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1211 as residues: Ile-10 to Leu-16, Pro-24 to Cys-29.
829019	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1212 as residues: Tyr-29 to Ser-42.
829020	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1213 as residues: Pro-22 to Arg-32, Leu-122 to Asp-127, Gln-134 to Tyr-140, Asp-153 to Arg-168.
829021	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1214 as residues: Ile-11 to Phe-16, Pro-38 to Ile-53.
829030	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1216 as residues: Lys-82 to Gly-87, Lys-224 to Asp-230, His-245 to Glu-253, Ser-279 to Lys-285, Val-308 to Lys-314, Arg-342 to Met-348, Lys-392 to Arg-397, His-452 to Gly-458.
829035	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1217 as residues: His-36 to Ser-43.
829051	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1221 as residues: Pro-3 to Trp-9.
829052	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1222 as residues: Ala-32 to Pro-37, Pro-57 to Trp-62, Pro-82 to Leu-93.
829057	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1223 as residues: Glu-9 to Thr-21, Leu-32 to Arg-45, Glu-49 to Ala-54, Lys-62 to Leu-68, Ala-71 to Thr-99, Leu-106 to Glu-113.
829059	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1225 as residues: Asn-2 to Ser-16.
829061	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1226 as residues: Lys-1 to Ser-7.
829062	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1227 as residues: Pro-15 to Cys-23, Pro-46 to Ala-54, Pro-71 to Gly-78, Leu-84 to Pro-92, Leu-131 to Arg-137, Ala-151 to Glu-161, Thr-215 to Leu-222, Glu-253 to Ser-261, Leu-269 to Leu-275, Asn-280 to Ser-285, Arg-292 to Glu-298, Gly-302 to Ser-309, Thr-322 to Arg-327, Lys-376 to Leu-388.
829063	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1228 as residues: Gly-12 to Ala-20, Arg-58 to Phe-68.
829064	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1229 as residues: Cys-9 to Tyr-14, Gly-35 to Thr-41, Ser-44 to Thr-49, Cys-53 to Thr-68, Leu-98 to Val-103, Ile-180 to Tyr-187, Ser-208 to Val-215.
829066	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1230 as residues: Phe-15 to Met-20.
829069	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1232 as residues: Asn-1 to Gly-12, Pro-31 to His-38, Ser-54 to Ser-59, Gly-64 to Lys-69.
829074	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1233 as residues: Leu-1 to Thr-17, Glu-38 to Gln-44, Glu-46 to Asp-55, Glu-82 to Glu-100, Lys-119 to Gly-129.

	Lys-147 to Ser-153, Pro-187 to Thr-210, Leu-225 to Val-233, Pro-272 to Gly-279, Arg-290 to Ser-303, Pro-311 to Lys-318, Ser-334 to Pro-356, Ser-370 to Arg-377, Gly-407 to Ser-412, Met-415 to His-423.
829077	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1234 as residues: Thr-1 to Thr-10, Asp-29 to Trp-35, His-37 to Trp-50, Lys-58 to Thr-65, Glu-77 to Glu-91, Glu-116 to Arg-128, Cys-219 to Pro-224.
829085	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1237 as residues: Arg-9 to Lys-31, Leu-66 to Lys-71, Gln-119 to Gly-131, Gln-230 to Leu-239.
829093	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1238 as residues: Gln-21 to Asp-26, Glu-178 to Asn-185, Arg-213 to Glu-218, Asp-238 to Asn-246, Val-264 to Pro-272, Val-280 to His-288.
829099	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1239 as residues: Arg-2 to Ser-8, Thr-140 to Ser-151, Val-153 to His-165, Leu-176 to Arg-182, Asp-200 to Thr-207, Asn-224 to Asp-229, Cys-239 to Ser-246.
829102	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1241 as residues: Pro-10 to Lys-19.
829103	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1242 as residues: Pro-30 to His-46, Glu-127 to Leu-133.
829104	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1243 as residues: Ser-19 to Trp-26, Lys-37 to Leu-59.
829109	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1244 as residues: Gln-22 to Ser-29.
829115	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1246 as residues: Gly-23 to Cys-29, Pro-35 to Cys-40, Gly-51 to Ser-64, Asp-108 to Arg-115, Glu-132 to Val-146, Thr-149 to Glu-155.
829120	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1249 as residues: Gly-68 to Arg-74, Pro-83 to Asn-88.
829126	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1252 as residues: Lys-18 to Lys-28.
829136	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1254 as residues: Asp-19 to His-26, Asp-127 to Gly-144, Thr-179 to Gln-194, Val-223 to Thr-229, Pro-235 to Tyr-240.
829138	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1255 as residues: Ala-23 to Glu-28, Glu-37 to Ser-46, Glu-63 to Gly-68, Gln-75 to Phe-84, Thr-91 to Ser-97, His-106 to Pro-117.
829142	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1256 as residues: Pro-21 to Thr-35.
829148	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1257 as residues: Pro-33 to Lys-40.
829149	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1258 as residues: His-9 to Glu-18, Arg-91 to Gly-96, Ser-124 to Asp-133, Asn-163 to Cys-172, Asn-216 to Thr-222, Thr-229 to Ile-235, Lys-238 to Glu-243.
829162	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1260 as residues: Arg-1 to Arg-6, Ala-53 to Gln-58.
829179	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1263 as residues: Gln-10 to Thr-21.
829184	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1264 as residues: Thr-76 to Val-81, Leu-88 to Pro-100, Tyr-140 to Lys-150.
829185	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1265 as residues: Pro-1 to Ser-21.
829188	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1266 as residues: Lys-11 to Trp-20, Ser-22 to Ala-27, Ile-35 to Met-51, Val-53 to Glu-69, Asn-145 to Leu-151, Asp-179 to Gln-187, Pro-280 to Ala-285, Asp-293 to Ile-300.
829190	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1267 as residues: Arg-3 to Gln-9, Pro-29 to Gln-34, Glu-98 to Asp-111.
829196	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1269 as residues:

	Leu-53 to Asn-62, Ala-125 to Ala-132.
829197	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1270 as residues: Leu-14 to Pro-19, Ser-25 to Ser-37.
829203	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1272 as residues: Glv-1 to Leu-9, Ser-80 to Glv-85.
829209	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1273 as residues: Ser-17 to Glu-29.
829210	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1274 as residues: Ser-13 to Tyr-18.
829214	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1275 as residues: Pro-2 to Asn-10, Lys-49 to Asn-54, Arg-91 to Asn-96, Glu-118 to Cys-125, Pro-139 to Glu-144.
829215	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1276 as residues: Asn-1 to Leu-6, Ser-27 to Pro-32.
829219	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1277 as residues: Pro-15 to Pro-25, Ala-54 to Phe-61, Ile-63 to Ser-82.
829220	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1278 as residues: Pro-1 to Ser-9, Glu-48 to Gly-54, Gly-66 to Leu-71, Pro-78 to Glu-84, Ala-108 to Gln-116, Ile-167 to Asp-172, Thr-179 to His-185.
829222	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1279 as residues: Thr-45 to Gln-51, Cys-53 to Asp-60, Gly-122 to Gly-127, Lys-136 to Gly-142, Pro-164 to Lys-172.
829223	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1280 as residues: Ile-11 to Trp-16.
829225	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1281 as residues: Lys-24 to Trp-30.
829226	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1282 as residues: Lys-48 to Lys-56, Arg-64 to Glu-79, Glu-102 to Tyr-111, Glu-159 to Cys-165, Thr-187 to Lys-193, Tyr-212 to Arg-220, Tyr-254 to Pro-262, Gly-278 to Asp-284, Pro-336 to Pro-341, Pro-441 to Glv-452, Glu-468 to Asp-480, Phe-486 to Tyr-495, Asp-498 to Asn-503.
829227	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1283 as residues: Pro-40 to Ala-46.
829231	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1284 as residues: Cys-12 to Ser-17.
829233	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1286 as residues: Pro-5 to Met-16, Ala-37 to Ala-46, Pro-70 to Leu-75.
829239	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1287 as residues: Glu-63 to Arg-70, Pro-82 to Leu-91, Arg-139 to Gln-146.
829242	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1289 as residues: Arg-11 to Gly-17, Lys-113 to Gly-120, Arg-163 to Ser-168, Asp-200 to His-210, Ile-217 to Ile-223, Arg-260 to Glu-266, Ser-274 to Leu-281.
829246	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1290 as residues: Arg-17 to Phe-25, Asn-27 to Asn-41, Thr-57 to Ser-69, Gln-92 to Asp-98.
829250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1291 as residues: Ser-2 to Ile-16.
829253	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1292 as residues: Arg-10 to Arg-20, Gly-48 to Val-53, Glu-69 to Asp-76, Glu-116 to Glu-122, Glu-132 to Trp-143, Asp-166 to Asn-175, Arg-191 to Asn-197, Gln-205 to Gly-233, Lys-235 to Ala-274.
829263	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1294 as residues: Pro-1 to Arg-13, Gly-20 to Gly-27, Gly-32 to Lys-38.
829266	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1295 as residues: Lys-1 to Arg-6.
829271	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1296 as residues: Ala-7 to Thr-13, Lys-56 to Lys-66, Pro-81 to Asp-88, Glu-140 to Thr-148, Ser-158 to Gln-164, Glu-201 to Asp-207, Glu-221 to Ser-230, Pro-236 to Gly-241, Pro-243 to Arg-261, Gln-270 to Gly-286.
829273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1297 as residues:

	Ser-19 to Ala-24.
829274	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1298 as residues: Pro-58 to Ser-64.
829276	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1299 as residues: Arg-5 to Glu-38.
829280	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1301 as residues: Ser-31 to Arg-36, Gln-61 to Lys-66.
829284	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1303 as residues: Arg-1 to Thr-7, Ala-9 to Arg-14, Gly-24 to Gly-29, Gly-52 to Ala-60, Arg-62 to Gly-71, Arg-84 to Asn-96, Pro-102 to Thr-107.
829287	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1305 as residues: Gln-38 to Lys-45.
829295	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1306 as residues: Pro-1 to Lys-13, Ala-32 to Gln-44.
829296	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1307 as residues: Glu-45 to Glu-59, Phe-61 to His-67, Ala-78 to Ser-85, Trp-100 to Pro-105.
829298	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1309 as residues: Phe-4 to Gln-10.
829302	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1310 as residues: Ser-17 to Trp-22, Ser-73 to Arg-80.
829320	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1312 as residues: Val-5 to Lys-18, Val-56 to Lys-64, Pro-94 to Gly-100, Phe-140 to Met-148, Glu-154 to Asp-161, Pro-182 to Cys-188, Pro-190 to Asn-197, Ala-216 to Leu-224.
829322	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1313 as residues: Pro-14 to Lys-26, Asp-31 to Lys-39, Arg-112 to Ile-120, Arg-128 to Gly-141, Lys-144 to Asp-151, Lys-159 to Gly-165, His-187 to Trp-203, Asn-246 to Ala-251, Ala-261 to Gln-266, Glu-271 to Thr-280.
829355	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1314 as residues: Ala-26 to Leu-33, Arg-120 to Phe-126, Thr-191 to Asn-203, Ser-223 to Pro-232.
829364	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1315 as residues: Arg-9 to Leu-15, Leu-67 to Ser-74, Asp-93 to Tyr-98, Leu-101 to Pro-108, Lys-117 to Thr-123, Thr-138 to Leu-143.
829946	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1319 as residues: Pro-20 to Gly-29, Glu-46 to Thr-56.
829952	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1321 as residues: Pro-11 to Glu-34, Leu-82 to Gln-88.
829954	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1322 as residues: Leu-32 to Val-38, Gly-75 to Ser-83, Ser-86 to Tyr-92, Lys-96 to His-104, Ser-109 to Ser-117, Gln-124 to Ser-130, Asn-132 to Asn-141, Pro-164 to Leu-178, His-187 to Gly-194, Pro-203 to Gln-217.
829955	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1323 as residues: Asp-39 to Gly-45, Asn-53 to Arg-80, Gln-85 to Gly-95, Glu-101 to Glu-111, His-132 to Gly-151, Leu-159 to Tyr-166, Ser-174 to Ser-179, His-188 to Gly-200, Gln-226 to Gly-235, Cys-255 to Gly-263.
829957	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1324 as residues: Gly-1 to Phe-12, Thr-14 to Val-22, Arg-30 to Met-37, Arg-63 to Pro-69, Arg-82 to Tyr-95, Glu-102 to Gly-109, Lys-223 to Leu-240.
829958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1325 as residues: Arg-13 to Trp-31, Val-61 to Asn-67, Lys-87 to Arg-92, Leu-97 to Asp-109, Ser-129 to Asp-139.
829960	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1326 as residues: Ile-1 to Ser-10, Ile-26 to Pro-31, Lys-83 to Asp-89, Gly-96 to Asn-101, Pro-122 to Asn-127, Ser-224 to Ile-231, Asp-350 to Pro-356.
829966	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1327 as residues: Tyr-7 to Tyr-15, Pro-43 to Ala-52, Gln-57 to Ala-62, Asn-68 to Ala-73, Tyr-75 to Met-83.
829981	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1330 as residues: Ala-96 to Lys-111, Cys-117 to Cys-128.



829985	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1331 as residues: Arg-11 to Val-19, Ala-21 to Trp-26, Tyr-54 to Lys-76, His-107 to Gln-112.
829988	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1333 as residues: Leu-32 to Glu-43, Gly-50 to Arg-58.
829990	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1334 as residues: Ser-27 to Ser-34, Gly-41 to Val-46.
829991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1335 as residues: Leu-15 to Gln-25.
829992	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1336 as residues: Asp-1 to Gly-8, Lys-26 to Trp-33, Pro-49 to Pro-54.
829993	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1337 as residues: Leu-3 to Ser-9.
829998	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1338 as residues: Glu-42 to Leu-47, Glu-125 to Ala-136.
830001	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1341 as residues: Gly-1 to Met-8, Ile-12 to Pro-17, Gly-77 to Ser-92.
830010	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1344 as residues: Cys-1 to Ser-6, Ala-55 to Ala-65, Pro-92 to Asn-97, Gln-100 to Pro-106, Gly-119 to Gly-125, Leu-135 to Arg-143, Ser-151 to Asp-159, Gln-164 to Ser-169, Thr-180 to Asn-186, Ser-204 to Val-216, Pro-224 to Arg-250, His-275 to Tyr-287.
830128	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1346 as residues: His-4 to Thr-10.
830129	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1347 as residues: Trp-52 to Thr-58, Arg-222 to Gly-227, Asn-255 to Asp-265, Pro-452 to Arg-458, Glu-503 to Lys-509, Gly-556 to Asn-563, Asp-628 to Glu-633, Glu-676 to Ser-697, Ala-708 to Ser-714.
830140	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1349 as residues: Gln-61 to Lys-67.
830157	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1350 as residues: Pro-1 to Arg-7, Arg-14 to Glu-24.
830195	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1351 as residues: Ser-2 to Arg-14, Ala-37 to Lys-45, Glu-60 to Leu-68, His-75 to Glu-82, Arg-92 to Ser-99, Gly-105 to Gln-110, Arg-119 to Phe-125.
830196	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1352 as residues: Lys-15 to Val-27, Glu-47 to Ile-79, Gly-83 to Phe-133, Lys-135 to Glu-142, Glu-174 to Ile-182, Ala-249 to Lys-257, Glu-272 to Leu-280, His-287 to Glu-294, Arg-304 to Ser-311, Gly-317 to Gln-322, Leu-372 to Lys-388, His-404 to Leu-409.
830409	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1353 as residues: Ser-4 to Ala-9.
830417	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1354 as residues: Pro-33 to Leu-39, Glu-54 to Val-59, Gly-69 to Ser-76.
830531	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1355 as residues: Lys-29 to Glu-37, Leu-126 to Gly-131, Asp-149 to Glu-159, Pro-235 to Thr-255.
830677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1356 as residues: Leu-23 to Val-37, Glu-39 to Asp-51, Gly-66 to Arg-71, Gly-79 to Gly-85, Pro-87 to Leu-94, Gly-102 to Lys-123, Ser-135 to Asp-142, Gln-145 to Arg-158, Gln-169 to Glu-174, Ala-178 to Gln-190, Ala-196 to Glu-209, Glu-212 to Glu-220, Arg-249 to His-255, Ala-298 to Glu-309, Arg-314 to Lys-368.
831355	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1357 as residues: Lys-49 to Gln-55, Glu-83 to Lys-90, Gly-158 to Gly-164, Lys-185 to Gly-192.
831420	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1358 as residues: Ala-6 to His-19, Glu-28 to Ser-42.
831702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1359 as residues: Gly-1 to Gly-12, Glu-23 to Gly-28, Gln-56 to Trp-62, Lys-75 to Thr-103, Arg-217 to Asp-223.
832488	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1361 as residues: Leu-52 to Thr-59, Pro-86 to Ser-92, Arg-107 to Gly-118, Lys-121 to Gly-128.
833207	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1362 as residues:

	Val-29 to Arg-43, Gly-66 to Arg-75, Ser-94 to Gly-99, Ser-106 to Ser-112, Asp-135 to Leu-151.
835940	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1363 as residues: Arg-9 to Gln-35, Arg-94 to Cys-104.
837105	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1365 as residues: Ser-59 to Ser-65, Gln-75 to Gln-80.
837373	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1367 as residues: Arg-48 to Tyr-58, Asp-67 to Lys-75.
837687	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1368 as residues: Gly-1 to Asp-9, Ser-40 to Lys-46, Ser-65 to Pro-72, Lys-124 to Asn-137.
837991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1369 as residues: Lys-41 to Lys-48.
838442	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1370 as residues: Cys-7 to Glu-13, Tyr-27 to Phe-37, Phe-64 to Gly-72, Val-96 to Asp-105, Asp-111 to Ala-117, Arg-119 to Gly-125.
840541	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1371 as residues: Phe-38 to His-43, Asp-53 to Asp-61.
840543	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1372 as residues: Ala-26 to Pro-32, Ser-49 to Ala-59, Glu-106 to Arg-112, Gly-140 to Arg-149, Ala-159 to Trp-181, Glu-216 to Leu-229, Ile-243 to Ser-250, Phe-254 to Lys-259.
840563	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1374 as residues: Ala-67 to Pro-87.
840565	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1375 as residues: Gln-6 to Asn-13, Ser-29 to Lys-37, Arg-73 to Val-78.
840569	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1376 as residues: Ile-1 to Thr-6.
840570	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1377 as residues: Pro-9 to Asp-23.
840571	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1378 as residues: Gly-1 to Leu-6, Gln-13 to Ser-19.
840573	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1379 as residues: Arg-1 to Ala-7, Cys-16 to Cys-21, Arg-28 to Trp-33, Ala-36 to Gln-42, Arg-50 to Val-55, Gly-63 to Gly-74, Glu-100 to Lys-112, Lys-121 to Gln-126, Asp-132 to Leu-148, Ser-155 to Ser-161, Thr-167 to Ser-187, Arg-219 to Leu-228.
840574	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1380 as residues: Lys-60 to Lys-72, Asn-81 to Pro-88.
840575	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1381 as residues: Pro-1 to Arg-6, Tyr-16 to Gly-32, Ser-67 to Gly-74, Ser-95 to Gly-101, Glu-194 to Lys-218, Lys-295 to Leu-305, Met-332 to Glu-337, Leu-339 to Ala-347, Glu-353 to Leu-358, Ile-369 to Glu-375, Glu-437 to Gln-444, Glu-467 to Gly-478, Gly-481 to Gly-505.
840579	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1382 as residues: Pro-40 to Ala-50, Lys-71 to Leu-76, Glu-125 to Lys-138, Cys-153 to Ser-159, Arg-167 to Glu-173, Lys-210 to Ser-215, Asn-251 to Ser-260, Trp-289 to Ser-296, Ala-358 to Ala-363, Thr-369 to Gly-376, Asn-404 to Gly-410, Pro-425 to Glu-433, His-439 to Glu-450, Gln-470 to Ile-476, Thr-493 to Leu-499.
840580	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1383 as residues: Glu-13 to Ile-28, Pro-70 to Gly-75.
840581	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1384 as residues: Ser-1 to Gly-12, Thr-27 to Pro-36, Ser-50 to Met-56.
840605	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1385 as residues: Leu-12 to Leu-17, Glu-49 to Ser-54.
840610	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1388 as residues: Thr-19 to Lys-26, Gly-46 to Thr-52, Thr-63 to Glu-68, Gly-145 to Gly-153, Ser-236 to Thr-241, Ser-253 to Arg-263, Glu-291 to Asp-296.
840612	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1390 as residues: Arg-101 to Arg-108, Trp-119 to Ala-125, Ala-131 to Asn-138, Leu-142 to Thr-150, His-354 to Ile-370.

840622	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1392 as residues: Asp-6 to Gly-11, Ala-13 to Ser-28, His-40 to Thr-232, Arg-242 to Gly-247, Gly-268 to Gln-276.
840624	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1394 as residues: Lys-5 to Gly-12, Ala-20 to Met-26, Gly-49 to Ser-55, Pro-57 to Tyr-63.
840631	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1395 as residues: Glu-8 to Arg-24, Ser-36 to Ser-44, Phe-78 to Arg-84, Ser-116 to Trp-123, Gly-266 to Gly-274, Lys-327 to Lys-332.
840633	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1397 as residues: Ser-137 to Ala-146, Gln-165 to Gln-171.
840636	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1400 as residues: Lys-24 to Tyr-32, Tyr-42 to Lys-47, Gly-60 to Ala-66, Pro-68 to His-77.
840637	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1401 as residues: Ala-10 to Gln-16, Gly-29 to Glu-40, Arg-45 to Ser-51, Thr-62 to Pro-67.
840639	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1402 as residues: Pro-35 to Asn-48, Ser-66 to Ser-73, Asp-76 to Gly-81, Gly-115 to Glu-120, Asp-131 to Gly-147, Ser-152 to Gly-158, Pro-175 to Ser-184, Arg-206 to Asn-220.
840640	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1403 as residues: Ser-118 to Ile-123.
840650	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1404 as residues: Leu-30 to Glu-44, Gly-52 to Ala-57, Tyr-133 to Leu-140, Asp-207 to Ser-219, Gln-272 to Asn-281.
840652	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1405 as residues: Trp-33 to Gly-64.
840653	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1406 as residues: Pro-1 to Ser-6, Leu-14 to Ser-40, Leu-81 to Asp-93, Pro-125 to Phe-130, Gly-137 to Glu-148, Trp-238 to Arg-246, Gln-279 to Asp-295, Cys-305 to Pro-311.
840655	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1407 as residues: Pro-2 to His-7.
840659	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1408 as residues: Gln-1 to Val-15, Ser-21 to Gly-27, Pro-32 to Trp-42, Asn-272 to Arg-277, Pro-314 to Gln-336.
840660	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1409 as residues: Glu-1 to Asn-17.
840661	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1410 as residues: Cys-7 to Ser-20, Pro-35 to Pro-42, Pro-67 to Ile-80, Thr-94 to Met-100, Leu-122 to Cys-129.
840662	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1411 as residues: Gln-97 to Leu-102, Ala-130 to Ser-136, Ser-142 to Thr-148, Ala-180 to Ser-186, Pro-191 to Glu-198, Asn-234 to Leu-240, Ser-270 to His-280.
840663	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1412 as residues: Pro-1 to Gly-12.
840670	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1413 as residues: Gly-65 to Cys-71, Lys-81 to Gln-88, Thr-97 to Asp-106, Glu-135 to Gly-143, Pro-161 to Ala-169.
840671	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1414 as residues: Pro-4 to Thr-11, Ala-15 to Pro-20.
840672	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1415 as residues: Asp-3 to Ala-10, Val-23 to Thr-34, Gln-96 to Asp-101, Thr-118 to Gly-126, Ala-130 to Lys-140, Thr-156 to Ser-176, Pro-268 to Gln-275, Pro-296 to Gly-304, Pro-342 to Pro-348, Glu-382 to Asp-389, Met-408 to Glu-414, Pro-425 to Gln-443, Pro-457 to Tyr-478, Glu-481 to Tyr-505, Gly-514 to Arg-521, Pro-525 to Gly-547, Ala-555 to Gln-567.
840673	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1416 as residues: Ser-9 to Gly-15, Ser-57 to Arg-72, Lys-90 to Pro-111, Pro-138 to Ser-151, Asp-188 to Arg-193.
840677	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1418 as residues: Gly-17 to Asn-22, Ser-59 to Val-74, Glu-83 to Glu-89, Leu-91 to Ser-97, Glu-165 to Leu-183, Ala-197 to Ile-202, Ala-207 to Pro-212, Lys-227 to Lys-243, Pro-251 to His-258.
840678	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1419 as residues: Glu-43 to Glu-48, Gly-75 to Asp-81, Arg-92 to Ser-100, Asp-108 to Tyr-114, Ala-154 to Asn-161, Thr-266 to Gln-272.

840680	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1420 as residues: Pro-2 to Glv-8.
840691	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1421 as residues: Gln-58 to Ser-64, Asp-83 to Met-88, Ser-104 to Pro-114, Asn-137 to Ser-146, Pro-179 to Gly-185, Arg-206 to Glu-228, Gly-237 to Thr-258, Gln-269 to Asp-275.
840700	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1422 as residues: His-25 to Cys-32, Arg-46 to Glu-52.
840701	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1423 as residues: Gln-8 to Trp-13, Lys-21 to Asp-28, Ile-107 to Leu-112, Lys-125 to Trp-130, Leu-159 to Thr-164.
840702	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1424 as residues: Asp-22 to Met-37.
840705	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1425 as residues: Asp-4 to Pro-12, His-29 to Ala-39, Leu-43 to Glu-66, Asp-71 to Glu-78, Leu-84 to Asp-98, Glu-102 to Ile-121, Pro-137 to Tyr-143.
840715	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1426 as residues: Cys-1 to Gln-42.
840717	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1427 as residues: Cys-1 to Gln-6, Val-19 to Ala-24.
840718	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1428 as residues: Gln-1 to Ser-14.
840724	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1430 as residues: Cys-53 to Lys-59, Thr-61 to Cys-67, Gly-86 to Cys-93.
840725	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1431 as residues: Trp-22 to Thr-27.
840727	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1432 as residues: Thr-1 to Gln-8, Val-23 to Gln-28, Glu-51 to His-63, Glu-73 to Gln-91.
840731	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1433 as residues: Thr-35 to Glu-43, Leu-54 to Leu-60, Pro-89 to Gly-107, Val-109 to Gly-117, Gln-119 to Thr-125.
840733	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1434 as residues: Asp-33 to Ser-48, Pro-62 to Gly-76, Ser-80 to Gln-89, Gly-96 to Trp-109.
840734	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1435 as residues: Gln-12 to Gln-17.
840736	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1436 as residues: Arg-7 to Val-13, Leu-28 to Arg-33, Ser-69 to Gln-76.
840746	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1439 as residues: Asp-7 to Ser-13, Gln-21 to Lys-30, Gln-34 to Val-49, Glu-68 to Glu-73, Leu-79 to Leu-96, Glu-109 to Glu-115, Leu-146 to Ser-153, Leu-197 to Asn-206, Ser-218 to Glu-223, Ala-278 to Trp-283, Lys-297 to Phe-303, Ser-318 to Val-323.
840748	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1440 as residues: Lys-11 to Trp-24, Arg-30 to Ser-36, Arg-41 to Ser-55, Ser-68 to Arg-74, Leu-102 to Lys-108, Val-162 to Thr-167, Ser-188 to Lys-195, Glu-211 to His-216, Arg-253 to Arg-268, Ser-273 to Pro-279, Arg-325 to Glu-330, Lys-358 to Asp-364.
840750	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1441 as residues: Met-48 to Gln-55, Ile-64 to Arg-69.
840751	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1442 as residues: Thr-30 to Lys-37, Gln-51 to Pro-56, Thr-58 to Val-72, Lys-81 to Val-88, Glu-90 to Asp-101, Gly-107 to Pro-113, Glu-115 to Ser-120, Lys-133 to Pro-143, Gly-172 to Asn-194, Val-196 to Gly-216, Phe-221 to Gln-226, Asn-255 to Lys-260, Leu-282 to Lys-290.
840757	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1443 as residues: Arg-8 to Gln-19, Arg-25 to Lys-38, Pro-91 to Pro-97.
840760	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1445 as residues: Glv-9 to Thr-14, Tyr-23 to Asp-32, Pro-40 to Pro-46.
840781	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1447 as residues: Glu-8 to Ser-13, Ser-26 to Lys-33, Lys-45 to Ser-50, Glu-81 to Glu-92, Asn-109 to Asp-115.
840789	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1448 as residues: Val-141 to Glu-147, Met-160 to Phe-166, Ser-176 to Asn-183, Arg-203 to Arg-210.

840790	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1449 as residues: Pro-17 to Asn-25.
840791	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1450 as residues: Ser-62 to Gln-126, Ala-143 to Gly-182.
840798	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1451 as residues: Ser-87 to Gln-95.
840802	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1452 as residues: Pro-22 to Glu-30, Lys-73 to Gly-79, Met-133 to Lys-140, Arg-166 to Lys-176.
840803	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1453 as residues: Ala-3 to Pro-12, Gln-29 to Ile-39, Ser-54 to Glu-72, Glu-79 to Asp-86, Pro-140 to Asp-147, Lys-161 to Lys-184, Val-188 to Thr-195, Asp-203 to Glu-215, Gln-231 to Phe-248, Gly-271 to Thr-281, Ser-290 to Asp-302, Gly-322 to Ser-336, Pro-342 to Leu-347, Lys-370 to Arg-394, Ser-424 to Ser-431, Asp-467 to Gln-483, Lys-507 to Ser-519, Phe-522 to Ser-567, Leu-578 to Gly-583, Thr-593 to Gln-600.
840811	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1455 as residues: Ser-10 to Gln-25, Pro-108 to Lys-124.
840814	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1457 as residues: Gln-29 to Arg-36.
840825	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1459 as residues: Ala-1 to Arg-10.
840827	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1461 as residues: Gly-13 to Gly-18, Pro-34 to Thr-45, Ser-47 to Asp-56, Ser-61 to Ser-73, Gly-81 to Gly-89, Gly-96 to Arg-102, Asp-118 to Glu-123, Thr-126 to Ala-132, Glu-178 to Glu-184, Glu-254 to Gly-260.
840828	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1462 as residues: Trp-53 to Asn-59, Thr-106 to Thr-111.
840829	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1463 as residues: Pro-16 to Thr-23, Val-67 to Asn-73.
840831	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1464 as residues: Thr-34 to Leu-42, Pro-82 to Tyr-88.
840837	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1466 as residues: Phe-39 to Ala-44, Lys-67 to Gln-77.
840838	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1467 as residues: Arg-2 to Gly-9, Arg-38 to Lys-46, Ser-53 to Ser-73, Asp-79 to Ala-84, Leu-129 to Glu-136, Glu-202 to Arg-210, Glu-216 to Ala-231, Glu-234 to Glu-254, Lys-259 to Leu-265.
840842	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1469 as residues: Phe-20 to Gly-25, Pro-73 to His-81, Pro-84 to Gly-90, Ser-94 to Arg-100.
840843	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1470 as residues: Gln-45 to Arg-55, Glu-74 to Leu-79, Lys-97 to Lys-103, Arg-108 to Lys-114, Asp-124 to Asp-138, His-153 to Gly-174, Lys-205 to Ala-223, Glu-230 to Arg-241, Glu-249 to Arg-256.
840845	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1471 as residues: Pro-29 to Trp-37, Pro-39 to Arg-44, Thr-51 to Trp-56, Ala-63 to Pro-73.
840851	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1473 as residues: Thr-23 to Glu-30, Gly-34 to Pro-51, Ser-53 to Pro-65, Lys-68 to Asp-85, Gly-97 to Gly-105, Ser-150 to Leu-163, Gln-205 to Thr-216, Thr-221 to Ser-227, Pro-237 to Leu-242, Val-258 to Asn-269, Glu-280 to Phe-291, Gly-295 to Pro-302, Gly-324 to Pro-332, Ser-342 to Ala-353, Arg-388 to Thr-426, Ser-432 to Tyr-439, Ala-452 to Gly-510, Glu-512 to Pro-524.
840854	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1475 as residues: Met-37 to Arg-43.
840858	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1476 as residues: Glu-37 to Lys-51, Thr-85 to Gly-91, Ser-115 to Trp-121, Tyr-177 to Asn-186.
840859	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1477 as residues: Asp-1 to Gln-7, Met-27 to Val-34.
840863	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1478 as residues: Lys-41 to Ala-51.
840868	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1479 as residues: Ala-3 to Trp-16, Lys-63 to Asn-72, Gln-112 to Leu-121, Leu-153 to Asp-159, Ala-163 to Leu-

	168, His-180 to Asp-187, Asp-347 to Gly-352, Met-356 to Ser-364, Pro-390 to Lys-401, Ala-519 to Thr-541, Arg-549 to Lys-554.
840869	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1480 as residues: Pro-6 to Asp-12, Arg-28 to Thr-37, Ile-50 to Lys-59, Ala-63 to Gly-70, Pro-89 to Tyr-96, Ser-103 to Ile-111, Thr-114 to Phe-121, Asp-141 to Pro-147, Arg-162 to Thr-172.
840870	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1481 as residues: Pro-18 to Gly-24.
840875	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1482 as residues: Thr-29 to Asn-37, Val-58 to Thr-63, Glu-114 to Glu-120, Thr-177 to Leu-184, Leu-196 to Ser-205.
840876	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1483 as residues: Gln-2 to Thr-7, Phe-119 to Trp-125, Thr-141 to Cys-147, Asn-210 to Gly-216, Thr-248 to Val-255, Pro-291 to Arg-296, Asp-308 to Asp-316, Glu-327 to Lys-335, Ser-341 to Thr-346.
840881	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1484 as residues: Asp-1 to Pro-14, Met-24 to Val-42, Lys-44 to Ser-60, Tyr-107 to Thr-114.
840883	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1485 as residues: Pro-28 to Cys-35, Glu-37 to Gln-43, Arg-51 to Arg-58, Gly-79 to Gly-85.
840886	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1486 as residues: Arg-1 to Ser-6, Gln-45 to Gln-51.
840887	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1487 as residues: Asn-77 to Met-83.
840891	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1488 as residues: Gln-1 to His-8, Arg-16 to Gln-25, Thr-32 to Ser-42.
840892	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1489 as residues: Pro-19 to Val-29, Lys-31 to Tyr-48.
840894	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1490 as residues: Pro-48 to Leu-55, Ser-65 to Gly-70, His-93 to His-126, Ile-128 to Glu-146, Leu-151 to Trp-159, Trp-161 to Pro-170, His-177 to Ala-182.
840896	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1491 as residues: Thr-37 to Ser-51.
840897	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1492 as residues: Ser-8 to Gly-13, Cys-32 to Ser-39, Cys-59 to Gly-64, Arg-72 to Gly-78, Leu-91 to Glu-104, Gly-118 to Glu-123, Asn-140 to Gln-149, Leu-157 to Ile-173, Glu-188 to Gln-209, Asn-222 to Lys-244, Gln-294 to Ile-300, Glu-336 to Val-342, Leu-346 to Lys-355.
840898	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1493 as residues: Ala-1 to Thr-6.
840904	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1494 as residues: Arg-7 to Gly-18, Asn-33 to Trp-40, Leu-48 to Thr-54, Pro-101 to Ala-106, Lys-119 to Val-126, Lys-169 to Leu-175, Gln-205 to Asp-216, Met-232 to Val-239, Arg-241 to Glu-252, Glu-260 to Pro-276, Ser-284 to Ile-291.
840905	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1495 as residues: Pro-17 to Ala-29, Leu-57 to His-67, Tyr-131 to Gly-137, Val-148 to Ser-153, Leu-214 to Gln-225, Ser-242 to Ser-247, Gly-261 to Ser-267, Arg-281 to Pro-286, Thr-299 to Lys-304, Ile-314 to Val-320, Lys-348 to Thr-366.
840908	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1496 as residues: Phe-49 to Glu-58, Leu-71 to Pro-85, Gln-105 to Leu-110, Thr-153 to Glu-158, Glu-168 to Ser-173, Asn-192 to Lys-197, Gln-207 to Asn-264, Pro-292 to Lys-299, Gln-331 to Leu-337, Ser-355 to Gly-362, Asp-381 to Gly-387, Val-396 to Asp-403, Thr-411 to His-416, Arg-451 to Gly-457, Glu-464 to Ala-469, Asn-492 to Gly-509, Tyr-518 to Thr-526, Glu-562 to Ser-567.
840909	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1497 as residues: Pro-15 to Gly-29, Arg-34 to Ser-52.
840910	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1498 as residues: Arg-26 to Met-31.
840912	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1499 as residues: Ala-14 to His-19, Gln-31 to Thr-39, Phe-55 to Cys-60.
840916	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1500 as residues:

	Glv-7 to Leu-13.
840917	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1501 as residues: Ile-20 to Cys-26.
840918	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1502 as residues: Glu-59 to Thr-69, Thr-89 to Glu-96, Met-103 to Thr-110, Tyr-168 to Lys-176, Asn-196 to Ile-201, Thr-226 to Phe-235, Asp-244 to Glu-252, Lys-282 to Ser-290, Thr-325 to Thr-339, Lys-357 to Lys-362, Asn-397 to Tyr-403.
840922	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1503 as residues: Phe-1 to Lys-7.
840927	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1505 as residues: Cys-52 to Lys-57.
840928	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1506 as residues: Arg-2 to Thr-7, Gln-65 to Trp-73, Glu-103 to Glu-110, Glu-219 to Asn-227, Glu-309 to Trp-320, Asp-389 to Asp-394.
840929	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1507 as residues: Pro-1 to Arg-7, Asp-21 to Lys-43, Lys-48 to Arg-53, Gln-59 to Gln-75, Pro-81 to Ala-86, Asp-127 to Lys-143, Glu-191 to Arg-197.
840930	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1508 as residues: Phe-1 to Cys-8, Ala-10 to Gly-23, Gln-114 to Lys-120, Glu-129 to Phe-135, Ile-155 to Gln-160, Ser-193 to Thr-199, Asp-214 to Gly-226, Asp-236 to Gly-245, Ala-283 to Arg-288, Ala-322 to Asp-331.
840931	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1509 as residues: Leu-28 to Asp-35, Leu-59 to Ser-65, Glu-111 to Lys-117, Gln-131 to Ala-137.
840941	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1510 as residues: Pro-16 to Ser-26, Arg-41 to Gly-49, Glu-51 to Arg-64, Tyr-69 to Phe-77, Thr-82 to Asp-90, Asp-168 to Gln-173, Lys-240 to Tyr-248.
840944	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1511 as residues: Gln-1 to Asp-10, Pro-104 to Glu-113, Pro-136 to Ala-142, Asn-152 to Lys-161.
840948	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1513 as residues: Ala-21 to His-26, Pro-41 to Gln-46, Lys-56 to Glu-66.
840953	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1515 as residues: Gly-1 to Ser-8, Arg-10 to Ser-15, Leu-17 to Gly-22, Lys-115 to Ala-130, Tyr-149 to Gly-156, Asn-181 to Glu-190, Glu-252 to Glu-257, Ser-339 to Asp-347, Leu-356 to Leu-361, Ser-387 to Lys-395, Thr-470 to Ile-476.
840954	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1516 as residues: Pro-12 to Phe-17, Asn-40 to Lys-55, Ser-105 to Thr-112, Lys-154 to Trp-168, Arg-176 to Phe-184, Leu-216 to Thr-224, Leu-237 to Val-242, Ala-365 to Val-370, Pro-379 to Gly-386, Leu-424 to Gly-430, Tyr-439 to Ser-451, Lys-459 to Tyr-464, Arg-595 to Asn-606, Asp-613 to Asn-621.
840958	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1517 as residues: Ala-1 to Lys-14, Glu-18 to Lys-40, Pro-61 to Thr-68, Pro-70 to Gln-78, Tyr-82 to Gly-90.
840960	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1518 as residues: Pro-42 to Asp-47, Thr-53 to Pro-59.
840968	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1519 as residues: Gln-5 to Glu-11.
840969	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1520 as residues: Glu-40 to His-45, Tyr-59 to Gly-68, Pro-107 to Pro-112, Leu-116 to Thr-121, Asp-139 to Lys-152.
840978	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1524 as residues: Ile-14 to Asp-19.
840980	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1525 as residues: Leu-1 to Pro-9, Val-13 to Val-41, Glu-79 to Met-86, Gln-89 to Lys-97, Glu-116 to Lys-128, Ser-130 to Gln-136, Arg-152 to Gly-158, Cys-161 to Lys-171, Pro-173 to Ala-182, Cys-184 to Ala-190, Leu-200 to Ser-206, Pro-225 to Leu-252.
840982	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1526 as residues: Pro-1 to Cys-9, Lys-27 to Ser-32, Glu-58 to Val-63, Ser-78 to Val-83.
840985	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1527 as residues:

	Asn-6 to Leu-17, Met-23 to Asp-33, His-56 to Gln-69, Arg-82 to Asp-89, Arg-92 to Lys-97, Ala-99 to Arg-104, Glu-140 to Asp-146, Ser-173 to Tyr-178, Cys-189 to Leu-194, Val-239 to Asn-245, Glu-266 to Arg-276.
840989	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1528 as residues: Asn-72 to Ile-78, Gly-102 to Asp-109, Arg-150 to Trp-158, Phe-255 to Pro-266, Glu-272 to Lys-277.
840991	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1529 as residues: Thr-10 to Ala-17, His-24 to Leu-30, Ala-128 to Val-136.
840996	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1530 as residues: Cys-107 to Gln-112, Lys-142 to Ser-148.
840997	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1531 as residues: Ile-25 to Pro-35, Asp-37 to Thr-42, Ala-56 to Phe-71, Arg-75 to Gln-82, Thr-127 to Tyr-139.
840998	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1532 as residues: Lys-19 to Thr-24, Pro-35 to Gln-130.
840999	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1533 as residues: Phe-44 to Arg-53.
841000	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1534 as residues: Ala-4 to Pro-13.
841002	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1535 as residues: Pro-8 to Ser-18, His-27 to Ser-39, Pro-50 to Gly-59.
841003	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1536 as residues: Pro-24 to Glu-31.
841008	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1537 as residues: Cys-10 to Cys-16, Thr-114 to Gly-120, Asn-200 to Lys-209.
841013	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1538 as residues: Phe-58 to Asn-66, Ala-82 to Gln-88, Ser-169 to Glu-178, Pro-222 to Gly-227, Glu-283 to Glu-289, Ala-314 to Gly-321, Ile-370 to Asn-376, Lys-409 to Ala-423, Asp-444 to Arg-449, Ser-456 to Glu-463, Asn-472 to Asn-477.
841014	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1539 as residues: Asn-8 to Phe-17, Gly-58 to Asp-64, Glu-186 to Ser-191, Ala-266 to Ile-271, Thr-300 to Lys-309, Val-327 to Met-332.
841015	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1540 as residues: Tyr-17 to Thr-29, Lys-35 to Glu-40.
841019	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1542 as residues: Phe-9 to Phe-16.
841024	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1543 as residues: Ser-6 to Gly-15, Ala-90 to Gly-96, Val-119 to Trp-127, Val-147 to Lys-155, Ala-174 to Glu-181, Ala-231 to Leu-239.
841025	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1544 as residues: Leu-18 to His-27, Asp-29 to Ser-42, Glu-62 to Asn-72, Ser-76 to Glu-81.
841026	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1545 as residues: Ala-3 to Gly-10, Lys-41 to Gly-48, Pro-69 to Ser-81, Pro-92 to Thr-97, Asn-101 to Lys-110, Gly-173 to Gly-182, Arg-188 to Asn-199.
841027	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1546 as residues: Pro-1 to Arg-19, Asp-42 to Glu-48, Asp-70 to Tyr-79, Asn-81 to Gly-88, Ala-91 to Gly-98, Glu-153 to Pro-163.
841029	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1547 as residues: Arg-50 to Ser-58, Arg-66 to Asp-73, Pro-96 to Ser-102, Gln-133 to Arg-142.
841030	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1548 as residues: Ser-23 to Gln-30.
841034	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1550 as residues: Ser-56 to Lys-61.
841036	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1551 as residues: Leu-89 to Lys-102.
841039	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1552 as residues: Glu-19 to Ser-24, Ser-52 to Gly-60, Ser-67 to Gly-74, Lys-142 to Gly-148, Pro-178 to Arg-184.



841048	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1554 as residues: Met-22 to Tyr-49, Arg-60 to Thr-69, Gln-93 to Glu-111, Pro-113 to Glu-139, His-152 to Ser-162, Lys-172 to Glu-178, Ser-183 to Ile-188, Asn-191 to Arg-201, Arg-251 to Asn-259, Thr-297 to Arg-303, Val-379 to Gln-401, Ser-407 to Pro-414, Thr-428 to Lys-446.
841050	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1556 as residues: Ile-6 to Asn-15.
841052	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1557 as residues: Pro-37 to Arg-42, Asn-83 to Phe-90, Lys-187 to Cys-192, Asp-209 to Gly-215, His-236 to Lys-243, Tyr-263 to Glv-276, Thr-308 to Glv-314, Glu-346 to Asp-351.
841054	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1558 as residues: Pro-8 to Glu-18, Ala-47 to Gly-53.
841055	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1559 as residues: Val-13 to Leu-31.
841056	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1560 as residues: Arg-8 to Phe-13, Arg-29 to Val-36.
841060	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1561 as residues: Asp-69 to Gln-74.
841062	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1563 as residues: Gly-1 to Lys-6, Thr-10 to Lys-16, Asp-22 to Pro-35, Pro-62 to Asp-77, Ile-85 to Met-97, Leu-130 to Thr-135, Lys-206 to Gly-213, Leu-234 to Ser-242, Leu-334 to Glu-341, Ser-354 to Lys-369, Glu-398 to Lys-409, Glu-425 to Glu-477.
841063	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1564 as residues: Ala-1 to Trp-12, Glu-49 to Glv-56, Lys-99 to Thr-110, Glu-147 to Lys-154.
841067	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1565 as residues: Ser-7 to Ala-12, Glv-14 to Met-30, Lys-52 to Ala-58.
841074	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1566 as residues: Ala-1 to Gln-6, Glu-22 to Arg-30, Leu-43 to Ser-52, Glu-61 to Lys-70, Lys-75 to Glu-84, Thr-105 to Lys-110, Asp-131 to Ala-143, Ser-151 to Thr-158, Thr-200 to Asp-208.
841076	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1567 as residues: Lys-1 to Glv-6, Asp-13 to Glu-27.
841083	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1569 as residues: Leu-42 to Lys-49, Glu-63 to Ser-68, Glu-93 to Gln-98, Asn-109 to Ser-115, Met-147 to Lys-152.
841093	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1571 as residues: Pro-5 to Glu-14, Ala-84 to His-90, Thr-93 to Gly-99, Asn-124 to Val-133, Met-144 to Val-149, Thr-192 to Glu-200.
841097	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1572 as residues: Pro-46 to Glu-56, Phe-65 to Ser-73, Glu-114 to Asp-121, Thr-132 to Gln-139, Asp-171 to Pro-177, Thr-215 to Val-221.
841098	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1573 as residues: Arg-9 to Gly-14, Met-36 to Lys-57, Pro-93 to Gly-98.
841113	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1575 as residues: Gln-10 to Gly-18.
841115	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1576 as residues: Ile-1 to Lys-13, Thr-36 to Ala-42, Asn-49 to Leu-55, Phe-59 to Arg-70, Asp-80 to Arg-86, Lys-92 to Lys-98.
841117	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1578 as residues: Arg-1 to Glu-26, Thr-59 to Glu-64, Gln-69 to Met-77, Arg-79 to Ser-84, Pro-86 to Pro-97, Arg-104 to Lys-121, Ala-133 to Arg-141, Leu-162 to Ser-169.
841127	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1580 as residues: Pro-1 to Pro-12, Arg-51 to Ile-56, Lys-69 to Arg-85, Glu-115 to Arg-122, Gly-129 to Gln-134, Lys-138 to Lys-156, Gly-163 to Pro-170.
841128	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1581 as residues: Pro-75 to Glu-91, Glu-121 to Gly-126, Ile-149 to Lys-155, Ala-185 to Asp-201, Glu-237 to Gly-252, Leu-256 to Ser-276.
841134	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1584 as residues: Lys-43 to Leu-48, Lys-54 to Ala-62, Asn-75 to Ala-82, Glu-135 to Asp-140, Glu-173 to Leu-178.

	Lys-213 to Tyr-222.
841138	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1587 as residues: Arg-68 to Gln-74, Ser-85 to Asp-115, Arg-133 to Lys-144, Arg-152 to Ile-165, Pro-184 to Lys-191, Leu-198 to Lys-215, Val-235 to Glu-240, Asp-246 to Asn-266, Glu-284 to Pro-292.
841141	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1589 as residues: Pro-16 to Glu-27, Pro-36 to Phe-43, Asn-71 to Ser-84, Thr-107 to Ser-115, Glu-147 to Lys-161, Pro-167 to Ser-185, Ser-187 to Ser-206.
841145	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1591 as residues: Glu-33 to Pro-40, Arg-48 to Pro-56, Met-71 to Gly-76, Ser-103 to Arg-115.
841146	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1592 as residues: Lys-21 to Thr-26, Thr-37 to Pro-42.
841150	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1593 as residues: Ser-56 to Thr-62.
841153	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1594 as residues: Glu-4 to Trp-9.
841154	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1595 as residues: Asp-24 to Tyr-29, Ser-34 to Asn-42, Leu-45 to Lys-61, Thr-117 to Ser-124, Lys-153 to Asp-158, Glu-174 to Lys-180, Leu-188 to Gly-204, Ala-220 to Leu-227, Gly-262 to His-268, Lys-276 to Thr-287, Phe-307 to Pro-319, Thr-345 to Met-351, Gln-427 to Ala-432, Asp-438 to Gln-443.
841156	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1596 as residues: Glu-4 to Gly-12, Thr-21 to Gln-27, Pro-40 to Ser-47, Pro-50 to Ser-61, Val-101 to Cys-107, Lys-138 to Gly-147, Gln-150 to Tyr-156, Lys-169 to Thr-174.
841157	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1597 as residues: Val-35 to Ala-41, Gln-56 to Trp-70.
841159	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1598 as residues: Gln-1 to Arg-7, Arg-14 to Glu-22, Ala-43 to Asp-55, Thr-65 to Arg-71.
841164	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1599 as residues: Arg-1 to Cys-11, Arg-18 to Arg-25, Glu-83 to Glu-88, Gly-108 to Lys-113.
841167	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1600 as residues: Arg-16 to Asp-22.
841170	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1601 as residues: Ala-1 to Ala-14, Ala-37 to Asp-45, Thr-55 to Leu-62, Glu-76 to Gly-82, Ile-101 to Gly-110, Pro-119 to Gly-127, Pro-129 to Asp-142, Lys-196 to Ser-210, Pro-216 to Tyr-246.
841173	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1602 as residues: Arg-52 to Gln-57, Asp-181 to Gly-187, Ser-260 to Val-271, Lys-285 to Asp-290.
841178	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1604 as residues: Ser-1 to Ala-9, Ala-14 to Ile-30, Pro-41 to Ser-50, Asn-56 to Arg-63, Asp-95 to Lys-102, Pro-126 to Ser-132.
841181	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1606 as residues: Thr-3 to Arg-12.
841182	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1607 as residues: Gly-12 to Gln-26, Cys-34 to Gly-49, Glu-86 to Tyr-93, Phe-103 to Thr-139, Asp-145 to Gln-153, Tyr-167 to Arg-176, Ser-192 to Gly-200, Ala-219 to Gly-226, Glu-234 to Trp-242.
841187	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1609 as residues: Glu-1 to Gly-15, Pro-23 to Val-48, Pro-58 to Glu-63, Thr-79 to Trp-91, Asn-203 to Lys-213.
841188	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1610 as residues: Arg-1 to Gly-7, Ile-92 to Tyr-98, Arg-153 to Gly-159, Ala-319 to Ser-324, Lys-350 to Glu-359.
841189	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1611 as residues: Arg-13 to Ala-21, Thr-29 to Arg-34, Glu-41 to Ala-50, Ser-65 to Glu-71, Glu-108 to Glu-117, Ile-144 to Arg-154, Gly-159 to His-186, Lys-189 to Tyr-197.
841192	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1612 as residues: Gln-56 to Leu-63, Gln-188 to Lys-193, His-200 to Gly-205, Leu-208 to Asn-215, Thr-358 to Lys-367, Lys-369 to Gln-377, His-426 to Arg-431, Tyr-437 to Glu-446, Glu-459 to Pro-476.
841194	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1613 as residues: Phe-54 to Ser-59, Thr-63 to Asp-69.
841195	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1614 as residues:

	His-1 to Gln-6, Ala-66 to Gly-79, Leu-88 to Asp-95, Glu-121 to Ile-126, Pro-140 to Pro-147, Ile-173 to Trp-180, Asn-195 to Tyr-206.
841198	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1615 as residues: Gln-29 to Arg-34, Thr-65 to Thr-76, Arg-100 to Arg-108, Leu-163 to Ala-173.
841201	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1617 as residues: Gln-3 to Lys-10, Pro-42 to Pro-50, Ser-66 to Ser-80, Glu-107 to Ala-121.
841202	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1618 as residues: Ser-11 to Trp-23, Glu-25 to Gly-32, Ala-56 to Gly-67, Glu-80 to Pro-96, Ala-166 to Leu-177, Asn-222 to His-231, Met-239 to Gly-249, Gly-318 to Pro-338.
841209	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1619 as residues: Arg-4 to Leu-27, Gln-63 to Leu-82, Pro-168 to Ser-175.
841213	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1621 as residues: Val-17 to Tyr-22, Cys-32 to Asp-49, Ser-104 to Pro-114.
841219	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1623 as residues: Leu-10 to Glu-28, Lys-54 to Gln-60.
841222	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1624 as residues: Ile-9 to Ser-14, Pro-68 to Cys-80, Ser-82 to Thr-87, Ile-136 to His-155, Lys-214 to Asn-224.
841223	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1625 as residues: Pro-12 to Glu-17.
841226	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1627 as residues: Ala-40 to Thr-52.
841227	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1628 as residues: Val-54 to Asn-60, Glu-81 to Thr-87, Asn-103 to Glu-108, Asn-163 to His-168, Ile-170 to Tyr-175.
841233	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1632 as residues: Gly-8 to Gly-20, Ser-81 to Phe-89, Leu-135 to Gln-140, Glu-156 to Tyr-168.
841234	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1633 as residues: Lys-65 to Phe-70, Asp-99 to Ile-104, Arg-122 to Asp-128, Leu-244 to Ile-250, Leu-258 to Leu-268, Ala-270 to Lys-286, Lys-310 to Asp-318, Asn-338 to Gln-344, Asp-360 to Leu-369, Lys-414 to Gln-422, Glu-435 to Arg-449, Lys-471 to Phe-476, Arg-498 to Leu-505, Ala-526 to Gly-534, Ala-536 to Pro-559, Pro-586 to Tyr-612, Tyr-624 to Tyr-629, Gln-639 to Gln-668.
841236	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1634 as residues: Lys-5 to Pro-18, Glu-24 to Ser-36, Pro-57 to Gly-63.
841239	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1636 as residues: Arg-1 to Ser-6.
841243	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1638 as residues: Gln-1 to Asp-7, Pro-26 to Ser-31, Leu-41 to Arg-46, Gly-57 to Thr-65, Lys-71 to Lys-76.
841248	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1639 as residues: Ala-8 to Thr-23, Pro-35 to Met-41, Asn-60 to Thr-65, Asn-89 to Glu-94, Pro-161 to Leu-167, Asp-184 to Trp-189, Phe-192 to Leu-206, Arg-215 to Leu-221.
841250	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1640 as residues: Asn-13 to Gly-22, Gln-24 to Lys-29, Ser-44 to Gly-51, Thr-128 to Asp-138, Glu-166 to Leu-175, Arg-187 to Ala-192, Pro-240 to Ala-256, Ser-259 to Trp-265, Met-281 to Lys-288, Leu-318 to Trp-356, Ser-379 to Thr-385, Phe-409 to Tyr-419.
841251	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1641 as residues: Arg-13 to Phe-20, His-22 to Ser-27, Gln-70 to Phe-76.
841254	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1642 as residues: Thr-1 to Lys-15, Gln-41 to Glu-46.
841263	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1643 as residues: Ser-27 to Arg-35, Leu-76 to Trp-85, Arg-112 to Thr-118.
841269	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1645 as residues: Lys-12 to Lys-19.
841273	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1647 as residues: Tyr-3 to Asn-9.
841277	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1649 as residues: Pro-55 to Ser-62, Arg-124 to Ile-129, Arg-145 to Asn-151, Asn-186 to Asn-196, Lys-267 to Lys-

	274. Arg-368 to Arg-373.
841278	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1650 as residues: Ala-6 to Pro-13, Asn-19 to Phe-24.
841279	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1651 as residues: Thr-3 to Glv-12, Arg-19 to Ala-24, Arg-30 to Gly-43, Pro-46 to Trp-51, Glv-77 to Arg-85.
841280	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1652 as residues: Ser-14 to Thr-20, Glu-44 to Gly-50, Lys-68 to Pro-76, Glu-91 to Glu-96, Ala-110 to Lys-116, Lys-124 to His-131, Gly-164 to Gln-173, Leu-191 to Asn-200, Met-215 to Ser-221, Gln-236 to Lys-258, Pro-266 to Asn-271, Pro-279 to Asp-286.
841282	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1653 as residues: Leu-3 to Lys-8.
841283	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1654 as residues: Tyr-1 to Glu-9, Ala-12 to Ser-18, His-63 to Phe-77, Asn-98 to Arg-110.
841286	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1655 as residues: Ser-13 to Arg-19, Leu-28 to Val-35, Pro-37 to Gly-57, Ser-81 to Pro-87, Ile-102 to Arg-111.
841287	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1656 as residues: Arg-1 to Ala-10, Val-23 to Phe-42, Asp-60 to Tyr-69, Pro-71 to Ser-79.
841288	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1657 as residues: Ser-4 to Pro-9, Arg-18 to Pro-26.
841291	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1658 as residues: Lys-16 to Ser-23, Gln-56 to Asp-63, Lys-137 to His-145, Glu-149 to His-156, Glu-163 to Gly-171, Pro-173 to Ala-180, Lys-189 to Ala-206, Glu-208 to Gln-214, Pro-231 to Ser-240.
841294	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1660 as residues: Gly-6 to Gly-12, Glu-19 to Pro-37, Gly-43 to Pro-55, Asp-62 to Gln-78, Arg-89 to Gln-95, Lys-99 to Arg-118, Glu-123 to Ala-139.
841301	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1663 as residues: Asn-8 to Arg-13, Gly-36 to Leu-43, Arg-53 to Cys-59.
841303	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1664 as residues: Pro-23 to Gly-35, Pro-38 to Phe-45, Pro-47 to Gly-56, Val-68 to Tyr-73, Gly-123 to Gly-135, Met-150 to Gln-164, Arg-212 to Ile-220, Arg-284 to Ile-289, Tyr-296 to His-315, Gln-325 to Ile-334, Thr-471 to Arg-476.
841304	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1665 as residues: Phe-33 to Arg-47, Asn-65 to Gly-71, Asp-95 to Gly-100, Asp-152 to Asn-163, His-223 to Gly-229.
841305	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1666 as residues: Gly-5 to Trp-19, Pro-21 to Ser-35, Pro-42 to Ser-58, Pro-64 to Asp-75.
841309	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1667 as residues: Lys-1 to Lys-6, Lys-18 to Asp-25, Thr-46 to Arg-64, His-97 to Lys-105, Glu-113 to Ala-118, Asn-126 to Gly-137, Thr-142 to Pro-147, Glu-155 to Ile-173, Ala-175 to Asn-184, Ser-188 to Glu-222, Glu-228 to Ala-242, Ala-263 to Asp-272, Thr-277 to Asp-288, Lys-293 to Met-308, Ile-348 to Gly-359, Pro-361 to Thr-386, Pro-403 to Arg-411, Asp-466 to Gln-473, Arg-479 to Thr-493, Lys-507 to Lys-513.
841314	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1668 as residues: Leu-4 to Ala-11, Phe-106 to Trp-112, Lys-204 to Ile-209, Ser-224 to Leu-236, Pro-254 to Ser-262, Phe-282 to Met-295.
841316	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1669 as residues: Pro-60 to Ser-67, Lys-86 to Ile-92, Arg-125 to Lys-130, Glu-155 to Asp-161, Glu-170 to Ser-176, Thr-181 to Val-187, Leu-198 to Asn-203, Gln-258 to Lys-263, Pro-271 to Asn-276, Phe-286 to Glu-292.
841318	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1670 as residues: Pro-14 to Trp-25, His-36 to Arg-41, Gly-66 to Tyr-73, Glu-82 to Pro-89.
841321	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1671 as residues: Asp-11 to Gly-19, Asp-26 to Val-31, Ala-52 to Asn-71, Gly-75 to Gly-81, Pro-88 to Gly-119, Pro-125 to Pro-180, Gly-187 to Gly-193, Tyr-196 to Tyr-218.
841324	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1672 as residues: Gly-45 to Val-54, Trp-67 to Gly-75, Asp-82 to Asn-90, Ala-124 to Trp-132, Thr-139 to Gln-145.

841326	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1673 as residues: Thr-45 to Asn-50, Lys-60 to Arg-73, Arg-81 to Asp-87, Lys-91 to Ser-96, Pro-105 to Gly-114, Ser-130 to Leu-136, Leu-145 to Ile-154, Cys-279 to Pro-284, Thr-321 to Glu-326, Pro-389 to Thr-398, Ala-406 to Ile-412, Ala-431 to Glu-438, Lys-495 to Glu-500, Asn-520 to Val-526, Glu-541 to Asn-547, Thr-552 to Tyr-557.
841328	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1674 as residues: Asn-64 to Ala-78, Ser-155 to Ala-169, Lys-290 to Asp-314.
841329	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1675 as residues: Leu-10 to Trp-18, Arg-21 to Leu-32, Pro-35 to Leu-55, Arg-74 to Phe-90, Pro-106 to Trp-115, Val-142 to Thr-152.
841330	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1676 as residues: Glv-14 to Ala-19, Arg-34 to Arg-41.
841333	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1677 as residues: Leu-20 to Val-26.
841335	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1679 as residues: Asn-10 to Cys-17.
841336	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1680 as residues: Lys-1 to Arg-9, Ala-57 to Met-66, Ile-70 to Glu-78, Ile-104 to Gly-125, Thr-155 to Glu-160, Pro-174 to Leu-184, Ala-200 to Arg-206, Ser-231 to Ser-255, Gln-281 to Asp-287.
841337	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1681 as residues: Arg-79 to Val-86, Ala-111 to Glu-125, Pro-148 to Met-153, Arg-180 to Leu-188, Pro-275 to Gly-296, Pro-336 to Phe-350, Glv-353 to Ser-362, Val-364 to Arg-371.
841340	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1683 as residues: Pro-39 to Ser-46.
841341	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1684 as residues: Pro-9 to Gly-23, Glu-43 to Ala-51, Ser-62 to Gly-91.
841343	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1686 as residues: Lys-49 to Glv-66, Ala-78 to Ser-85, Glv-90 to Thr-97, Arg-124 to Glv-129.
841352	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1688 as residues: Arg-37 to Leu-47, Gln-93 to Asp-112, Arg-114 to Arg-119, Arg-124 to Arg-142.
841353	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1689 as residues: Leu-23 to Thr-28, Ile-47 to Lys-56, Arg-91 to Gln-99, Glv-111 to Ser-119.
841354	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1690 as residues: Ser-36 to Arg-42.
841360	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1691 as residues: Asn-1 to Thr-11, Pro-64 to Phe-75, Phe-117 to Ile-122, Glu-124 to Arg-131, Trp-142 to Gln-147, Thr-176 to Ser-185, Arg-208 to Gly-215, Gln-238 to Ser-244, Ala-246 to Val-256, Ser-264 to Lys-272.
841405	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1693 as residues: Leu-1 to Gly-14, Arg-21 to Gln-26, Lys-62 to Val-73, His-131 to Asp-136, Glu-142 to Tyr-158, Val-162 to Gly-169, Gln-183 to Gly-189, Glu-205 to Gly-210, Gln-222 to Asp-231, Gly-237 to Tyr-244, Ala-251 to Leu-267, Asp-298 to Asn-305, Glu-332 to Lys-337, Arg-344 to Ala-349.
841526	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1694 as residues: Pro-1 to Arg-8.
841712	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1695 as residues: Gln-34 to Lys-44, Ser-70 to Leu-75, Ala-79 to Pro-89, Glu-94 to Thr-101, Gln-103 to Ser-112.
842042	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1697 as residues: Arg-64 to Glu-69, Ile-78 to Tyr-86, Asp-128 to Gly-148, Pro-166 to Pro-187, Ala-194 to Lys-239, Ala-243 to Ala-255.
842453	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1698 as residues: Glv-41 to Glv-53, Gly-65 to Arg-74.
842635	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1699 as residues: Cys-2 to Asp-11, Lys-39 to Phe-55, Tyr-72 to Trp-78, Thr-154 to Lys-164, Ser-191 to Lys-203, Asp-218 to Asp-223.
842927	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1700 as residues: Pro-8 to Trp-14, Glv-33 to Glu-48, Arg-58 to Lys-67, Thr-76 to Gln-96, Ala-98 to Ser-118, Cys-

	193 to Thr-201, Leu-225 to Trp-232, Asp-256 to Phe-262.
843237	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1703 as residues: His-1 to Gly-14, Leu-36 to Ser-41, Gln-45 to Arg-59, Gly-66 to Arg-91, Lys-104 to Trp-113, Arg-143 to Leu-148, Val-172 to Val-181, Pro-235 to Lys-242.
843381	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1704 as residues: Arg-9 to Arg-14, Gly-27 to Cys-32, Ser-53 to Leu-61, Ala-66 to Phe-71.
843823	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1706 as residues: Asp-11 to Tyr-16.
844056	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1707 as residues: Lys-145 to Thr-159, Ser-167 to Lys-176, Asn-216 to Lys-224.
844344	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1709 as residues: Gly-4 to Asp-9, Glu-23 to Lys-31, Asn-38 to Tyr-47.
844368	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1710 as residues: His-5 to Gly-15, Pro-97 to Cys-103.
844408	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1711 as residues: Thr-49 to Gln-60.
844867	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1713 as residues: Ile-49 to Thr-60.
845281	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1715 as residues: Gly-5 to Arg-12.
845288	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1716 as residues: Ala-1 to Gly-6, Ala-8 to Val-15, Ala-159 to Pro-164.
845750	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1717 as residues: Arg-1 to Thr-9.
845809	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1718 as residues: Glu-9 to Arg-14, Thr-19 to Arg-27, Asp-48 to Ile-57, Gln-63 to Leu-75, Cys-89 to Thr-104, Gly-106 to Pro-113, Gly-127 to Thr-133, Arg-144 to Asn-157, Ile-179 to Arg-199.
846077	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1719 as residues: Pro-11 to Trp-18, Cys-59 to Pro-68, Thr-77 to Glu-86, Arg-94 to Asn-102.
HPRT105R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1721 as residues: Pro-22 to Tyr-34.
HPDED94R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1724 as residues: Gly-1 to Glu-6.
HDTGH11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1725 as residues: Thr-32 to Met-37.
HTEJR60R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1726 as residues: Ala-1 to Ser-6.
HAGGY86R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1727 as residues: Leu-25 to Trp-40, Val-49 to His-56, Leu-60 to Asn-67.
HPIAU47R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1728 as residues: Glu-88 to Leu-93.
HCGAD89R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1729 as residues: Glu-30 to Asp-45.
HAPOD39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1730 as residues: Tyr-21 to Ala-28, Ser-74 to Gly-81.
HDRAA14R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1733 as residues: Ala-1 to Pro-8, Ala-10 to Val-16, Pro-43 to Leu-52.
HSLCA48R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1734 as residues: Gln-26 to Leu-31.
HMQDF20R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1736 as residues: Phe-33 to Ala-43, His-86 to Ser-93.
HCHOH06R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1737 as residues: Gly-4 to Lys-10, Arg-17 to Glu-24, Gln-36 to Glu-41, Arg-61 to Arg-76.
HLDRN91R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1740 as residues: Arg-22 to Gln-27, Ser-33 to Val-38, Lys-46 to Gly-57, Gln-92 to Gly-97.
HE6GO78R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1743 as residues:

	Ser-3 to Trp-12.
HSYBY17R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1745 as residues: Gln-30 to Pro-36.
HPJCS07R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1746 as residues: Tyr-25 to Phe-32.
HFKFH08R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1748 as residues: Arg-2 to Gln-8, Val-49 to Asn-54, Gln-58 to Tyr-64.
HPIBI27R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1750 as residues: Glu-17 to Asp-22, Pro-46 to Arg-52, Pro-75 to Asp-84.
HSKJG37R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1751 as residues: Leu-66 to Gly-72, Asp-89 to Pro-97, Thr-104 to Leu-110.
H2LAZ24R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1752 as residues: Pro-20 to Ala-26, Ser-107 to Ala-113, Asp-129 to Gly-135, Thr-139 to Asp-146, Ser-152 to Arg-168, Glu-173 to Pro-180.
H2LAS11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1756 as residues: Pro-20 to Ser-25, Lys-67 to Phe-76, Pro-78 to Asn-86, Asp-100 to Gly-108, Arg-116 to Gly-122, Glu-153 to Ala-158.
HADMC73R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1758 as residues: Ala-1 to Tyr-9.
HDTDX66R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1760 as residues: Met-2 to Leu-9, Lys-11 to Pro-28, Asp-57 to Leu-68, Gln-81 to Ser-96, Ser-98 to Arg-106.
HLPBB39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1761 as residues: Cys-27 to Lys-33, Thr-35 to Cys-41.
HKABU38R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1763 as residues: Pro-1 to Pro-11, Ala-17 to Lys-25, Asp-54 to Leu-59, Thr-66 to Arg-76, Arg-90 to Pro-107, Pro-139 to Glu-146.
HATAI03R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1765 as residues: Phe-1 to Asn-6.
HCEDE25R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1766 as residues: Ala-6 to Thr-13.
H2LAO77R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1770 as residues: Ala-16 to Pro-30, Thr-44 to Val-57, Lys-75 to Gly-80, Asp-92 to Leu-102, Ala-113 to Tyr-120.
HNTRW15R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1771 as residues: Met-3 to Lys-9, Ala-16 to Trp-37.
HULBL38R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1773 as residues: Cys-1 to Glu-6, Asp-52 to Asp-65, Lys-82 to Pro-88.
HNTBK49R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1774 as residues: Pro-40 to Gly-45.
HBAFS48R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1775 as residues: Pro-1 to Glu-18, Pro-37 to Met-44.
HOHBU75R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1777 as residues: His-24 to Gly-29, Glu-32 to Asp-37, Gly-47 to Pro-60.
HSLBA61R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1779 as residues: Asn-37 to Thr-42.
HKAKR61R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1782 as residues: Arg-1 to Thr-7.
H2LAD40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1785 as residues: Trp-13 to Asp-19, Cys-29 to Gln-34, Ala-41 to Arg-52, Gly-54 to Gln-59, Arg-69 to Pro-78.
H2MBU27R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1788 as residues: Asp-3 to Lys-9, Arg-88 to Gln-95.
HDSAHS3R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1789 as residues: Asp-7 to Lys-13.
HAIDF69R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1790 as residues: Gln-13 to Pro-22.
HTWJC11R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1793 as residues: Pro-27 to Val-32.

HKAEC40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1794 as residues: Lys-86 to Lys-91.
HCFNM70R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1795 as residues: Thr-19 to Lys-24.
HKBAB93R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1796 as residues: Lys-9 to Tyr-26, Arg-48 to Lys-53, Ser-68 to Thr-75, Ala-84 to Leu-89.
HMAEA94R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1800 as residues: His-60 to Asp-69, Phe-87 to Ala-93.
HMWEA08R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1801 as residues: Met-3 to Thr-8, Tyr-33 to Gly-38, Lys-54 to Glu-65.
HRACC09R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1803 as residues: Lys-7 to Trp-18.
HOEEC67R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1804 as residues: Lys-24 to Glu-31.
HPFEA40R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1805 as residues: Arg-4 to Ile-20.
HHECI89R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1807 as residues: Ala-1 to Arg-12, Pro-22 to Met-28, Glu-53 to Thr-61, Gly-90 to Ile-97.
HSDFV03R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1808 as residues: Ser-18 to Phe-24, Pro-40 to Thr-46.
HTXPN01R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1809 as residues: Lys-19 to Glu-28.
HACBH95R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1813 as residues: Pro-43 to Gly-51.
HACBY16R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1814 as residues: Arg-1 to Glu-16.
HAHAD34R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1816 as residues: Gly-13 to Ala-21.
HAJAN69R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1817 as residues: Gly-1 to Gly-22, Pro-61 to Ala-70.
HAPPR17R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1819 as residues: Asn-8 to Met-13, Asp-15 to Met-21.
HGBBE20R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1824 as residues: Arg-28 to Leu-33.
HBMVT43R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1828 as residues: Pro-1 to Asn-8.
HCFLN25R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1830 as residues: Gly-16 to Trp-21, Pro-24 to Leu-32.
HCQAW59R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1831 as residues: Gly-1 to Gly-8, Pro-11 to Asn-21.
HDPMA46R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1832 as residues: Glu-14 to Gly-32, Pro-61 to Gly-66.
HDTAQ26R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1833 as residues: Ser-1 to Gly-7.
HDTLD39R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1835 as residues: Thr-14 to Ser-44.
HE2PO63R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1836 as residues: Phe-11 to Lys-17, Gly-36 to Gly-43.
HELHK95R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1838 as residues: Pro-20 to Pro-28.
HETIB72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1840 as residues: Gln-1 to Glu-9.
HFIYH65R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1842 as residues: Ala-2 to His-8, Gly-26 to Cys-32.
HKIXO47R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1848 as residues: Ala-1 to Arg-8, Val-12 to Lys-25.



HLWBC80R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1851 as residues: Arg-72 to Gly-80, Leu-86 to Phe-92.
HLYAV50R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1852 as residues: Asp-1 to Gly-6, Gly-44 to Arg-50.
HMEKY67R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1853 as residues: Arg-12 to Phe-24, Pro-32 to Ser-43.
HOUDQ92R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1858 as residues: Arg-1 to Cys-7.
HPIAF72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1860 as residues: Gln-1 to Arg-17, Ala-25 to Pro-32.
HPIAU01R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1861 as residues: Pro-9 to Gly-18.
HPIAU73R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1862 as residues: Arg-9 to Gln-35, Arg-51 to Gly-56.
HPIAW19R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1863 as residues: Ala-16 to Arg-26, Thr-67 to Asn-76.
HPIAZ19R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1864 as residues: Glu-1 to His-6, Gly-19 to Trp-31.
HPIBA31R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1865 as residues: Glu-1 to His-6, Gly-19 to Trp-31.
HPIBS06R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1866 as residues: Pro-25 to Lys-31.
HPICB65R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1867 as residues: Ser-2 to Gln-10, Val-26 to Lys-34, Asp-52 to Glu-58, Arg-93 to Trp-102.
HPJBF22R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1868 as residues: Glu-1 to His-6, Gly-19 to Trp-31.
HPJBZ81R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1869 as residues: Ser-18 to Gly-23.
HSDJK57R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1873 as residues: Thr-53 to Arg-64.
HSIFY54R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1874 as residues: Phe-35 to Asp-58, Phe-92 to Phe-105.
HUFAT72R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1878 as residues: Pro-16 to Phe-25.
HULAI70R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1879 as residues: Pro-13 to Gly-22, Arg-45 to Cys-50.
HTGFW12R	Preferred epitopes include those comprising a sequence shown in SEQ ID NO. 1880 as residues: Pro-6 to Gly-16, Arg-24 to Pro-32.

The present invention encompasses polypeptides comprising, or alternatively consisting of, an epitope of the polypeptide sequence shown in SEQ ID NO:Y, or an epitope of the polypeptide sequence encoded by the cDNA in the related cDNA clone contained in a deposited library or encoded by a polynucleotide that hybridizes to the complement of an epitope encoding sequence of SEQ ID NO:X, or an epitope encoding sequence contained in the deposited cDNA clone under stringent hybridization conditions, or alternatively, under lower stringency hybridization conditions, as defined supra. The present invention further encompasses polynucleotide sequences encoding an epitope of a polypeptide sequence of the invention (such as, for example, the sequence disclosed in SEQ ID NO:X), polynucleotide sequences of the complementary strand of a polynucleotide sequence encoding an epitope of the invention, and polynucleotide sequences which hybridize to this complementary strand under stringent hybridization conditions or alternatively, under lower stringency hybridization conditions, as defined supra.

The term "epitopes," as used herein, refers to portions of a polypeptide having antigenic or immunogenic activity in an animal, preferably a mammal, and most preferably in a human. In a preferred embodiment, the present invention encompasses a polypeptide comprising an epitope, as well as the polynucleotide encoding this polypeptide. An "immunogenic epitope," as used herein, is defined as a portion of a protein that elicits an antibody response in an animal, as determined by any method known in the art, for example, by the methods for generating antibodies described infra. (See, for example, Geysen et al., Proc. Natl. Acad. Sci. USA 81:3998- 4002 (1983)). The term "antigenic epitope," as used herein, is defined as a portion of a protein to which an antibody can immunospecifically bind its antigen as determined by any method well known in the art, for example, by the immunoassays described herein. Immunospecific binding excludes non-specific binding but does not necessarily exclude cross- reactivity with other antigens. Antigenic epitopes need not necessarily be immunogenic.

Fragments which function as epitopes may be produced by any conventional means. (See, e.g., Houghten, R. A., Proc. Natl. Acad. Sci. USA 82:5131-5135 (1985) further described in U.S. Patent No. 4,631,211.)

In the present invention, antigenic epitopes preferably contain a sequence of at least 4, at least 5, at least 6, at least 7, more preferably at least 8, at least 9, at least 10, at least 11, at least 12, at least 13, at least 14, at least 15, at least 20, at least 25, at least 30, at least 40, at least 50, and, most preferably, between about 15 to about 30 amino acids. Preferred polypeptides comprising immunogenic or antigenic epitopes are at least 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, or 100 amino acid residues in length. Additional non-exclusive preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as portions thereof. Antigenic epitopes are useful, for example, to raise antibodies, including monoclonal antibodies, that specifically bind the epitope. Preferred antigenic epitopes include the antigenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these antigenic epitopes. Antigenic epitopes can be used as the target molecules in immunoassays. (See, for instance, Wilson et al., Cell 37:767-778 (1984); Sutcliffe et al., Science 219:660-666 (1983)).

Similarly, immunogenic epitopes can be used, for example, to induce antibodies according to methods well known in the art. (See, for instance, Sutcliffe et al., supra; Wilson et al., supra; Chow et al., Proc. Natl. Acad. Sci. USA 82:910-914; and Bittle et al., J. Gen. Virol. 66:2347-2354 (1985)). Preferred immunogenic epitopes include the immunogenic epitopes disclosed herein, as well as any combination of two, three, four, five or more of these immunogenic epitopes. The polypeptides comprising one or more immunogenic epitopes may be presented for eliciting an antibody response together with a carrier protein, such as an albumin, to an animal system (such as rabbit or mouse), or, if the polypeptide is of sufficient length (at least about 25 amino acids), the polypeptide may be presented without a carrier. However, immunogenic epitopes comprising as few as 8 to 10 amino acids have been shown to be sufficient to raise antibodies capable of binding to, at the very least, linear epitopes in a denatured polypeptide (e.g., in Western blotting).

Epitope-bearing polypeptides of the present invention may be used to induce antibodies according to methods well known in the art including, but not limited to, in vivo immunization, in vitro immunization, and phage display methods. See, e.g., Sutcliffe et al., *supra*; Wilson et al., *supra*, and Bittle et al., *J. Gen. Virol.*, 66:2347-2354 (1985). If in vivo immunization is used, animals may be immunized with free peptide; however, anti-peptide antibody titer may be boosted by coupling the peptide to a macromolecular carrier, such as keyhole limpet hemacyanin (KLH) or tetanus toxoid. For instance, peptides containing cysteine residues may be coupled to a carrier using a linker such as maleimidobenzoyl- N-hydroxysuccinimide ester (MBS), while other peptides may be coupled to carriers using a more general linking agent such as glutaraldehyde. Animals such as rabbits, rats and mice are immunized with either free or carrier- coupled peptides, for instance, by intraperitoneal and/or intradermal injection of emulsions containing about 100 µg of peptide or carrier protein and Freund's adjuvant or any other adjuvant known for stimulating an immune response. Several booster injections may be needed, for instance, at intervals of about two weeks, to provide a useful titer of anti-peptide antibody which can be detected, for example, by ELISA assay using free peptide adsorbed to a solid surface. The titer of anti-peptide antibodies in serum from an immunized animal may be increased by selection of anti-peptide antibodies, for instance, by adsorption to the peptide on a solid support and elution of the selected antibodies according to methods well known in the art.

As one of skill in the art will appreciate, and as discussed above, the polypeptides of the present invention, and immunogenic and/or antigenic epitope fragments thereof can be fused to other polypeptide sequences. For example, the polypeptides of the present invention may be fused with the constant domain of immunoglobulins (IgA, IgE, IgG, IgM), or portions thereof (CH1, CH2, CH3, or any combination thereof and portions thereof) resulting in chimeric polypeptides. Such fusion proteins may facilitate purification and may increase half-life in vivo. This has been shown for chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light

chains of mammalian immunoglobulins. See, e.g., EP 394.827; Traunecker et al., Nature, 331:84-86 (1988). Enhanced delivery of an antigen across the epithelial barrier to the immune system has been demonstrated for antigens (e.g., insulin) conjugated to an FcRn binding partner such as IgG or Fc fragments (see, e.g., PCT Publications WO 96/22024 and WO 99/04813). IgG Fusion proteins that have a disulfide-linked dimeric structure due to the IgG portion disulfide bonds have also been found to be more efficient in binding and neutralizing other molecules than monomeric polypeptides or fragments thereof alone. See, e.g., Fountoulakis et al., J. Biochem., 270:3958-3964 (1995).

Similarly, EP-A-O 464 533 (Canadian counterpart 2045869) discloses fusion proteins comprising various portions of constant region of immunoglobulin molecules together with another human protein or part thereof. In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties. (EP-A 0232 262.) Alternatively, deleting the Fc part after the fusion protein has been expressed, detected, and purified, may be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to identify antagonists of hIL-5. (See, D. Bennett et al., J. Molecular Recognition 8:52-58 (1995); K. Johanson et al., J. Biol. Chem. 270:9459-9471 (1995).)

Moreover, the polypeptides of the present invention can be fused to marker sequences, such as a peptide which facilitates purification of the fused polypeptide. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Another peptide tag useful for purification, the "HA" tag, corresponds to an epitope

derived from the influenza hemagglutinin protein. (Wilson et al., Cell 37:767 (1984).)

Thus, any of these above fusions can be engineered using the polynucleotides or the polypeptides of the present invention.

5 Nucleic acids encoding the above epitopes can also be recombined with a gene of interest as an epitope tag (e.g., the hemagglutinin ("HA") tag or flag tag) to aid in detection and purification of the expressed polypeptide. For example, a system described by Janknecht et al. allows for the ready purification of non-denatured fusion proteins expressed in human cell lines (Janknecht et al., Proc. Natl. Acad. Sci. USA 10 88:8972- 897 (1991)). In this system, the gene of interest is subcloned into a vaccinia recombination plasmid such that the open reading frame of the gene is translationally fused to an amino-terminal tag consisting of six histidine residues. The tag serves as a matrix binding domain for the fusion protein. Extracts from cells infected with the recombinant vaccinia virus are loaded onto Ni<sup>2+</sup> nitriloacetic acid-agarose column and histidine-tagged proteins can be selectively eluted with imidazole-containing 15 buffers.

Additional fusion proteins of the invention may be generated through the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling"). DNA shuffling may be employed to 20 modulate the activities of polypeptides of the invention, such methods can be used to generate polypeptides with altered activity, as well as agonists and antagonists of the polypeptides. See, generally, U.S. Patent Nos. 5,605,793; 5,811,238; 5,830,721; 5,834,252; and 5,837,458, and Patten et al., Curr. Opinion Biotechnol. 8:724-33 (1997); Harayama, Trends Biotechnol. 16(2):76-82 (1998); Hansson, et al., J. Mol. 25 Biol. 287:265-76 (1999); and Lorenzo and Blasco, Biotechniques 24(2):308- 13 (1998) (each of these patents and publications are hereby incorporated by reference in its entirety). In one embodiment, alteration of polynucleotides corresponding to SEQ ID NO:X and the polypeptides encoded by these polynucleotides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA 30 segments by homologous or site-specific recombination to generate variation in the

polynucleotide sequence. In another embodiment, polynucleotides of the invention, or the encoded polypeptides, may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc., of a polynucleotide encoding a polypeptide of the invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules.

As discussed herein, any polypeptide of the present invention can be used to generate fusion proteins. For example, the polypeptide of the present invention, when fused to a second protein, can be used as an antigenic tag. Antibodies raised against the polypeptide of the present invention can be used to indirectly detect the second protein by binding to the polypeptide. Moreover, because secreted proteins target cellular locations based on trafficking signals, polypeptides of the present invention which are shown to be secreted can be used as targeting molecules once fused to other proteins.

Examples of domains that can be fused to polypeptides of the present invention include not only heterologous signal sequences, but also other heterologous functional regions. The fusion does not necessarily need to be direct, but may occur through linker sequences.

In certain preferred embodiments, proteins of the invention comprise fusion proteins wherein the polypeptides are N and/or C- terminal deletion mutants. In preferred embodiments, the application is directed to nucleic acid molecules at least 80%, 85%, 90%, 95%, 96%, 97%, 98% or 99% identical to the nucleic acid sequences encoding polypeptides having the amino acid sequence of the specific N- and C-terminal deletions mutants. Polynucleotides encoding these polypeptides are also encompassed by the invention.

Moreover, fusion proteins may also be engineered to improve characteristics of the polypeptide of the present invention. For instance, a region of additional amino acids, particularly charged amino acids, may be added to the N-terminus of the polypeptide to improve stability and persistence during purification from the host cell

or subsequent handling and storage. Also, peptide moieties may be added to the polypeptide to facilitate purification. Such regions may be removed prior to final preparation of the polypeptide. The addition of peptide moieties to facilitate handling of polypeptides are familiar and routine techniques in the art.

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### **Vectors, Host Cells, and Protein Production**

The present invention also relates to vectors containing the polynucleotide of the present invention, host cells, and the production of polypeptides by recombinant techniques. The vector may be, for example, a phage, plasmid, viral, or retroviral vector. Retroviral vectors may be replication competent or replication defective. In the latter case, viral propagation generally will occur only in complementing host cells.

The polynucleotides of the invention may be joined to a vector containing a selectable marker for propagation in a host. Generally, a plasmid vector is introduced in a precipitate, such as a calcium phosphate precipitate, or in a complex with a charged lipid. If the vector is a virus, it may be packaged in vitro using an appropriate packaging cell line and then transduced into host cells.

The polynucleotide insert should be operatively linked to an appropriate promoter, such as the phage lambda PL promoter, the E. coli lac, trp, phoA and tac promoters, the SV40 early and late promoters and promoters of retroviral LTRs, to name a few. Other suitable promoters will be known to the skilled artisan. The expression constructs will further contain sites for transcription initiation, termination, and, in the transcribed region, a ribosome binding site for translation. The coding portion of the transcripts expressed by the constructs will preferably include a translation initiating codon at the beginning and a termination codon (UAA, UGA or UAG) appropriately positioned at the end of the polypeptide to be translated.

As indicated, the expression vectors will preferably include at least one selectable marker. Such markers include dihydrofolate reductase, G418 or neomycin resistance for eukaryotic cell culture and tetracycline, kanamycin or ampicillin resistance genes for culturing in E. coli and other bacteria. Representative examples



of appropriate hosts include, but are not limited to, bacterial cells, such as *E. coli*, *Streptomyces* and *Salmonella typhimurium* cells; fungal cells, such as yeast cells (e.g., *Saccharomyces cerevisiae* or *Pichia pastoris* (ATCC Accession No. 201178)); insect cells such as *Drosophila* S2 and *Spodoptera* Sf9 cells; animal cells such as CHO, COS, 293, and Bowes melanoma cells; and plant cells. Appropriate culture mediums and conditions for the above-described host cells are known in the art.

Among vectors preferred for use in bacteria include pQE70, pQE60 and pQE-9, available from QIAGEN, Inc.; pBluescript vectors, Phagescript vectors, pNH8A, pNH16a, pNH18A, pNH46A, available from Stratagene Cloning Systems, Inc.; and ptrc99a, pKK223-3, pKK233-3, pDR540, pRIT5 available from Pharmacia Biotech, Inc. Among preferred eukaryotic vectors are pWLNEO, pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; and pSVK3, pBPV, pMSG and pSVL available from Pharmacia. Preferred expression vectors for use in yeast systems include, but are not limited to pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalph, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, pPIC9K, and PAO815 (all available from Invitrogen, Carlsbad, CA). Other suitable vectors will be readily apparent to the skilled artisan.

Introduction of the construct into the host cell can be effected by calcium phosphate transfection, DEAE-dextran mediated transfection, cationic lipid-mediated transfection, electroporation, transduction, infection, or other methods. Such methods are described in many standard laboratory manuals, such as Davis et al., *Basic Methods In Molecular Biology* (1986). It is specifically contemplated that the polypeptides of the present invention may in fact be expressed by a host cell lacking a recombinant vector.

A polypeptide of this invention can be recovered and purified from recombinant cell cultures by well-known methods including ammonium sulfate or ethanol precipitation, acid extraction, anion or cation exchange chromatography, phosphocellulose chromatography, hydrophobic interaction chromatography, affinity chromatography, hydroxylapatite chromatography and lectin chromatography. Most

preferably, high performance liquid chromatography ("HPLC") is employed for purification.

Polypeptides of the present invention can also be recovered from: products purified from natural sources, including bodily fluids, tissues and cells, whether  
5 directly isolated or cultured; products of chemical synthetic procedures; and products produced by recombinant techniques from a prokaryotic or eukaryotic host, including, for example, bacterial, yeast, higher plant, insect, and mammalian cells. Depending upon the host employed in a recombinant production procedure, the polypeptides of the present invention may be glycosylated or may be non-glycosylated. In addition,  
10 polypeptides of the invention may also include an initial modified methionine residue, in some cases as a result of host-mediated processes. Thus, it is well known in the art that the N-terminal methionine encoded by the translation initiation codon generally is removed with high efficiency from any protein after translation in all eukaryotic cells. While the N-terminal methionine on most proteins also is efficiently removed  
15 in most prokaryotes, for some proteins, this prokaryotic removal process is inefficient, depending on the nature of the amino acid to which the N-terminal methionine is covalently linked.

In one embodiment, the yeast *Pichia pastoris* is used to express polypeptides of the invention in a eukaryotic system. *Pichia pastoris* is a methylotrophic yeast  
20 which can metabolize methanol as its sole carbon source. A main step in the methanol metabolism pathway is the oxidation of methanol to formaldehyde using  $O_2$ . This reaction is catalyzed by the enzyme alcohol oxidase. In order to metabolize methanol as its sole carbon source, *Pichia pastoris* must generate high levels of alcohol oxidase due, in part, to the relatively low affinity of alcohol oxidase for  $O_2$ .  
25 Consequently, in a growth medium depending on methanol as a main carbon source, the promoter region of one of the two alcohol oxidase genes (*AOX1*) is highly active. In the presence of methanol, alcohol oxidase produced from the *AOX1* gene comprises up to approximately 30% of the total soluble protein in *Pichia pastoris*. See, Ellis, S.B., et al., *Mol. Cell. Biol.* 5:1111-21 (1985); Koutz, P.J., et al., *Yeast*

5:167-77 (1989); Tschopp, J.F., *et al.*, *Nucl. Acids Res.* 15:3859-76 (1987). Thus, a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, under the transcriptional regulation of all or part of the *AOX1* regulatory sequence is expressed at exceptionally high levels in *Pichia* yeast grown in the presence of methanol.

10 In one example, the plasmid vector pPIC9K is used to express DNA encoding a polypeptide of the invention, as set forth herein, in a *Pichea* yeast system essentially as described in "*Pichia* Protocols: Methods in Molecular Biology," D.R. Higgins and J. Cregg, eds. The Humana Press, Totowa, NJ, 1998. This expression vector allows expression and secretion of a polypeptide of the invention by virtue of the strong *AOX1* promoter linked to the *Pichia pastoris* alkaline phosphatase (PHO) secretory signal peptide (i.e., leader) located upstream of a multiple cloning site.

15 Many other yeast vectors could be used in place of pPIC9K, such as, pYES2, pYD1, pTEF1/Zeo, pYES2/GS, pPICZ, pGAPZ, pGAPZalpha, pPIC9, pPIC3.5, pHIL-D2, pHIL-S1, pPIC3.5K, and PAO815, as one skilled in the art would readily appreciate, as long as the proposed expression construct provides appropriately located signals for transcription, translation, secretion (if desired), and the like, including an in-frame AUG as required.

20 In another embodiment, high-level expression of a heterologous coding sequence, such as, for example, a polynucleotide of the present invention, may be achieved by cloning the heterologous polynucleotide of the invention into an expression vector such as, for example, pGAPZ or pGAPZalpha, and growing the yeast culture in the absence of methanol.

25 In addition to encompassing host cells containing the vector constructs discussed herein, the invention also encompasses primary, secondary, and immortalized host cells of vertebrate origin, particularly mammalian origin, that have been engineered to delete or replace endogenous genetic material (e.g., coding sequence), and/or to include genetic material (e.g., heterologous polynucleotide sequences) that is operably associated with polynucleotides of the invention, and

which activates, alters, and/or amplifies endogenous polynucleotides. For example, techniques known in the art may be used to operably associate heterologous control regions (e.g., promoter and/or enhancer) and endogenous polynucleotide sequences via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989), the disclosures of each of which are incorporated by reference in their entireties).

In addition, polypeptides of the invention can be chemically synthesized using techniques known in the art (e.g., see Creighton, 1983, *Proteins: Structures and Molecular Principles*, W.H. Freeman & Co., N.Y., and Hunkapiller et al., *Nature*, 310:105-111 (1984)). For example, a polypeptide corresponding to a fragment of a polypeptide can be synthesized by use of a peptide synthesizer. Furthermore, if desired, nonclassical amino acids or chemical amino acid analogs can be introduced as a substitution or addition into the polypeptide sequence. Non-classical amino acids include, but are not limited to, to the D-isomers of the common amino acids, 2,4-diaminobutyric acid,  $\alpha$ -amino isobutyric acid, 4-aminobutyric acid, Abu, 2-amino butyric acid, g-Abu, e-Ahx, 6-amino hexanoic acid, Aib, 2-amino isobutyric acid, 3-amino propionic acid, ornithine, norleucine, norvaline, hydroxyproline, sarcosine, citrulline, homocitrulline, cysteic acid, t-butylglycine, t-butylalanine, phenylglycine, cyclohexylalanine, b-alanine, fluoro-amino acids, designer amino acids such as b-methyl amino acids, Ca-methyl amino acids, Na-methyl amino acids, and amino acid analogs in general. Furthermore, the amino acid can be D (dextrorotary) or L (levorotary).

Non-naturally occurring variants may be produced using art-known mutagenesis techniques, which include, but are not limited to oligonucleotide mediated mutagenesis, alanine scanning, PCR mutagenesis, site directed mutagenesis (see, e.g., Carter et al., *Nucl. Acids Res.* 13:4331 (1986); and Zoller et al., *Nucl. Acids Res.* 10:6487 (1982)), cassette mutagenesis (see, e.g., Wells et al., *Gene* 34:315

(1985)), restriction selection mutagenesis (*see. e.g., Wells et al., Philos. Trans. R. Soc. London SerA 317:415 (1986)*).

The invention additionally, encompasses polypeptides of the present invention which are differentially modified during or after translation, e.g., by glycosylation, acetylation, phosphorylation, amidation, derivatization by known protecting/blocking groups, proteolytic cleavage, linkage to an antibody molecule or other cellular ligand, etc. Any of numerous chemical modifications may be carried out by known techniques, including but not limited, to specific chemical cleavage by cyanogen bromide, trypsin, chymotrypsin, papain, V8 protease, NaBH<sub>4</sub>; acetylation, formylation, oxidation, reduction; metabolic synthesis in the presence of tunicamycin; etc.

Additional post-translational modifications encompassed by the invention include, for example, e.g., N-linked or O-linked carbohydrate chains, processing of N-terminal or C-terminal ends), attachment of chemical moieties to the amino acid backbone, chemical modifications of N-linked or O-linked carbohydrate chains, and addition or deletion of an N-terminal methionine residue as a result of procaryotic host cell expression. The polypeptides may also be modified with a detectable label, such as an enzymatic, fluorescent, isotopic or affinity label to allow for detection and isolation of the protein.

Also provided by the invention are chemically modified derivatives of the polypeptides of the invention which may provide additional advantages such as increased solubility, stability and circulating time of the polypeptide, or decreased immunogenicity (*see U.S. Patent No. 4,179,337*). The chemical moieties for derivitization may be selected from water soluble polymers such as polyethylene glycol, ethylene glycol/propylene glycol copolymers, carboxymethylcellulose, dextran, polyvinyl alcohol and the like. The polypeptides may be modified at random positions within the molecule, or at predetermined positions within the molecule and may include one, two, three or more attached chemical moieties.

The polymer may be of any molecular weight, and may be branched or unbranched. For polyethylene glycol, the preferred molecular weight is between

about 1 kDa and about 100 kDa (the term "about" indicating that in preparations of polyethylene glycol, some molecules will weigh more, some less, than the stated molecular weight) for ease in handling and manufacturing. Other sizes may be used, depending on the desired therapeutic profile (e.g., the duration of sustained release  
5 desired, the effects, if any on biological activity, the ease in handling, the degree or lack of antigenicity and other known effects of the polyethylene glycol to a therapeutic protein or analog). For example, the polyethylene glycol may have an average molecular weight of about 200; 500; 1000; 1500; 2000; 2500; 3000; 3500; 4000; 4500; 5000; 5500; 6000; 6500; 7000; 7500; 8000; 8500; 9000; 9500; 10,000;  
10 10,500; 11,000; 11,500; 12,000; 12,500; 13,000; 13,500; 14,000; 14,500; 15,000; 15,500; 16,000; 16,500; 17,000; 17,500; 18,000; 18,500; 19,000; 19,500; 20,000; 25,000; 30,000; 35,000; 40,000; 50,000; 55,000; 60,000; 65,000; 70,000; 75,000; 80,000; 85,000; 90,000; 95,000; or 100,000 kDa.

As noted above, the polyethylene glycol may have a branched structure.  
15 Branched polyethylene glycols are described, for example, in U.S. Patent No. 5,643,575; Morpurgo *et al.*, *Appl. Biochem. Biotechnol.* 56:59-72 (1996); Vorobjev *et al.*, *Nucleosides Nucleotides* 18:2745-2750 (1999); and Caliceti *et al.*, *Bioconjug. Chem.* 10:638-646 (1999), the disclosures of each of which are incorporated herein by reference.

20 The polyethylene glycol molecules (or other chemical moieties) should be attached to the protein with consideration of effects on functional or antigenic domains of the protein. There are a number of attachment methods available to those skilled in the art, e.g., EP 0 401 384, herein incorporated by reference (coupling PEG to G-CSF), see also Malik *et al.*, *Exp. Hematol.* 20:1028-1035 (1992) (reporting  
25 pegylation of GM-CSF using tresyl chloride). For example, polyethylene glycol may be covalently bound through amino acid residues via a reactive group, such as, a free amino or carboxyl group. Reactive groups are those to which an activated polyethylene glycol molecule may be bound. The amino acid residues having a free amino group may include lysine residues and the N-terminal amino acid residues;  
30 those having a free carboxyl group may include aspartic acid residues glutamic acid

residues and the C-terminal amino acid residue. Sulfhydryl groups may also be used as a reactive group for attaching the polyethylene glycol molecules. Preferred for therapeutic purposes is attachment at an amino group, such as attachment at the N-terminus or lysine group.

- 5 As suggested above, polyethylene glycol may be attached to proteins via linkage to any of a number of amino acid residues. For example, polyethylene glycol can be linked to a proteins via covalent bonds to lysine, histidine, aspartic acid, glutamic acid, or cysteine residues. One or more reaction chemistries may be employed to attach polyethylene glycol to specific amino acid residues (e.g., lysine,
- 10 histidine, aspartic acid, glutamic acid, or cysteine) of the protein or to more than one type of amino acid residue (e.g., lysine, histidine, aspartic acid, glutamic acid, cysteine and combinations thereof) of the protein.

- One may specifically desire proteins chemically modified at the N-terminus. Using polyethylene glycol as an illustration of the present composition, one may
- 15 select from a variety of polyethylene glycol molecules (by molecular weight, branching, etc.), the proportion of polyethylene glycol molecules to protein (polypeptide) molecules in the reaction mix, the type of pegylation reaction to be performed, and the method of obtaining the selected N-terminally pegylated protein. The method of obtaining the N-terminally pegylated preparation (i.e., separating this
- 20 moiety from other monopegylated moieties if necessary) may be by purification of the N-terminally pegylated material from a population of pegylated protein molecules. Selective proteins chemically modified at the N-terminus modification may be accomplished by reductive alkylation which exploits differential reactivity of different types of primary amino groups (lysine versus the N-terminal) available for
- 25 derivatization in a particular protein. Under the appropriate reaction conditions, substantially selective derivatization of the protein at the N-terminus with a carbonyl group containing polymer is achieved.

- As indicated above, pegylation of the proteins of the invention may be accomplished by any number of means. For example, polyethylene glycol may be
- 30 attached to the protein either directly or by an intervening linker. Linkerless systems

for attaching polyethylene glycol to proteins are described in Delgado *et al.*, *Crit. Rev. Thera. Drug Carrier Sys.* 9:249-304 (1992); Francis *et al.*, *Intern. J. of Hematol.* 68:1-18 (1998); U.S. Patent No. 4,002,531; U.S. Patent No. 5,349,052; WO 95/06058; and WO 98/32466, the disclosures of each of which are incorporated  
5 herein by reference.

One system for attaching polyethylene glycol directly to amino acid residues of proteins without an intervening linker employs tresylated MPEG, which is produced by the modification of monmethoxy polyethylene glycol (MPEG) using tresylchloride ( $\text{ClSO}_2\text{CH}_2\text{CF}_3$ ). Upon reaction of protein with tresylated MPEG,  
10 polyethylene glycol is directly attached to amine groups of the protein. Thus, the invention includes protein-polyethylene glycol conjugates produced by reacting proteins of the invention with a polyethylene glycol molecule having a 2,2,2-trifluoroethane sulphonyl group.

Polyethylene glycol can also be attached to proteins using a number of  
15 different intervening linkers. For example, U.S. Patent No. 5,612,460, the entire disclosure of which is incorporated herein by reference, discloses urethane linkers for connecting polyethylene glycol to proteins. Protein-polyethylene glycol conjugates wherein the polyethylene glycol is attached to the protein by a linker can also be produced by reaction of proteins with compounds such as MPEG-  
20 succinimidylsuccinate, MPEG activated with 1,1'-carbonyldiimidazole, MPEG-2,4,5-trichloropenylcarbonate, MPEG-p-nitrophenolcarbonate, and various MPEG-succinate derivatives. A number additional polyethylene glycol derivatives and reaction chemistries for attaching polyethylene glycol to proteins are described in WO 98/32466, the entire disclosure of which is incorporated herein by reference.  
25 Pegylated protein products produced using the reaction chemistries set out herein are included within the scope of the invention.

The number of polyethylene glycol moieties attached to each protein of the invention (*i.e.*, the degree of substitution) may also vary. For example, the pegylated proteins of the invention may be linked, on average, to 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12,  
30 15, 17, 20, or more polyethylene glycol molecules. Similarly, the average degree of



substitution within ranges such as 1-3, 2-4, 3-5, 4-6, 5-7, 6-8, 7-9, 8-10, 9-11, 10-12, 11-13, 12-14, 13-15, 14-16, 15-17, 16-18, 17-19, or 18-20 polyethylene glycol moieties per protein molecule. Methods for determining the degree of substitution are discussed, for example, in Delgado *et al.*, *Crit. Rev. Thera. Drug Carrier Sys.* 9:249-304 (1992).

The prostate cancer antigen polypeptides of the invention may be in monomers or multimers (i.e., dimers, trimers, tetramers and higher multimers). Accordingly, the present invention relates to monomers and multimers of the polypeptides of the invention, their preparation, and compositions (preferably, Therapeutics) containing them. In specific embodiments, the polypeptides of the invention are monomers, dimers, trimers or tetramers. In additional embodiments, the multimers of the invention are at least dimers, at least trimers, or at least tetramers.

Multimers encompassed by the invention may be homomers or heteromers. As used herein, the term homomer, refers to a multimer containing only polypeptides corresponding to the amino acid sequence of SEQ ID NO:Y or an amino acid sequence encoded by SEQ ID NO:X, and/or an amino acid sequence encoded by the cDNA in a related cDNA clone contained in a deposited library (including fragments, variants, splice variants, and fusion proteins, corresponding to any one of these as described herein). These homomers may contain polypeptides having identical or different amino acid sequences. In a specific embodiment, a homomer of the invention is a multimer containing only polypeptides having an identical amino acid sequence. In another specific embodiment, a homomer of the invention is a multimer containing polypeptides having different amino acid sequences. In specific embodiments, the multimer of the invention is a homodimer (e.g., containing polypeptides having identical or different amino acid sequences) or a homotrimer (e.g., containing polypeptides having identical and/or different amino acid sequences). In additional embodiments, the homomeric multimer of the invention is at least a homodimer, at least a homotrimer, or at least a homotetramer.

As used herein, the term heteromer refers to a multimer containing one or more heterologous polypeptides (i.e., polypeptides of different proteins) in addition to

the polypeptides of the invention. In a specific embodiment, the multimer of the invention is a heterodimer, a heterotrimer, or a heterotetramer. In additional embodiments, the heteromeric multimer of the invention is at least a heterodimer, at least a heterotrimer, or at least a heterotetramer.

5           Multimers of the invention may be the result of hydrophobic, hydrophilic, ionic and/or covalent associations and/or may be indirectly linked, by for example, liposome formation. Thus, in one embodiment, multimers of the invention, such as, for example, homodimers or homotrimers, are formed when polypeptides of the invention contact one another in solution. In another embodiment, heteromultimers  
10 of the invention, such as, for example, heterotrimers or heterotetramers, are formed when polypeptides of the invention contact antibodies to the polypeptides of the invention (including antibodies to the heterologous polypeptide sequence in a fusion protein of the invention) in solution. In other embodiments, multimers of the invention are formed by covalent associations with and/or between the polypeptides  
15 of the invention. Such covalent associations may involve one or more amino acid residues contained in the polypeptide sequence (e.g., that recited in SEQ ID NO:Y, or contained in a polypeptide encoded by SEQ ID NO:X, and/or by the cDNA in the related cDNA clone contained in a deposited library). In one instance, the covalent associations are cross-linking between cysteine residues located within the  
20 polypeptide sequences which interact in the native (i.e., naturally occurring) polypeptide. In another instance, the covalent associations are the consequence of chemical or recombinant manipulation. Alternatively, such covalent associations may involve one or more amino acid residues contained in the heterologous polypeptide sequence in a fusion protein. In one example, covalent associations are between the  
25 heterologous sequence contained in a fusion protein of the invention (see, e.g., US Patent Number 5,478,925). In a specific example, the covalent associations are between the heterologous sequence contained in a Fc fusion protein of the invention (as described herein). In another specific example, covalent associations of fusion proteins of the invention are between heterologous polypeptide sequence from  
30 another protein that is capable of forming covalently associated multimers, such as for

example, osteoprotegerin (see, e.g., International Publication NO: WO 98/49305, the contents of which are herein incorporated by reference in its entirety). In another embodiment, two or more polypeptides of the invention are joined through peptide linkers. Examples include those peptide linkers described in U.S. Pat. No. 5,073,627 (hereby incorporated by reference). Proteins comprising multiple polypeptides of the invention separated by peptide linkers may be produced using conventional recombinant DNA technology.

Another method for preparing multimer polypeptides of the invention involves use of polypeptides of the invention fused to a leucine zipper or isoleucine zipper polypeptide sequence. Leucine zipper and isoleucine zipper domains are polypeptides that promote multimerization of the proteins in which they are found. Leucine zippers were originally identified in several DNA-binding proteins (Landschulz et al., Science 240:1759, (1988)), and have since been found in a variety of different proteins. Among the known leucine zippers are naturally occurring peptides and derivatives thereof that dimerize or trimerize. Examples of leucine zipper domains suitable for producing soluble multimeric proteins of the invention are those described in PCT application WO 94/10308, hereby incorporated by reference. Recombinant fusion proteins comprising a polypeptide of the invention fused to a polypeptide sequence that dimerizes or trimerizes in solution are expressed in suitable host cells, and the resulting soluble multimeric fusion protein is recovered from the culture supernatant using techniques known in the art.

Trimeric polypeptides of the invention may offer the advantage of enhanced biological activity. Preferred leucine zipper moieties and isoleucine moieties are those that preferentially form trimers. One example is a leucine zipper derived from lung surfactant protein D (SPD), as described in Hoppe et al. (FEBS Letters 344:191, (1994)) and in U.S. patent application Ser. No. 08/446,922, hereby incorporated by reference. Other peptides derived from naturally occurring trimeric proteins may be employed in preparing trimeric polypeptides of the invention.

In another example, proteins of the invention are associated by interactions between Flag® polypeptide sequence contained in fusion proteins of the invention

containing Flag® polypeptide sequence. In a further embodiment, associations proteins of the invention are associated by interactions between heterologous polypeptide sequence contained in Flag® fusion proteins of the invention and anti-Flag® antibody.

5           The multimers of the invention may be generated using chemical techniques known in the art. For example, polypeptides desired to be contained in the multimers of the invention may be chemically cross-linked using linker molecules and linker molecule length optimization techniques known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

10       Additionally, multimers of the invention may be generated using techniques known in the art to form one or more inter-molecule cross-links between the cysteine residues located within the sequence of the polypeptides desired to be contained in the multimer (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Further, polypeptides of the invention may be routinely

15       modified by the addition of cysteine or biotin to the C-terminus or N-terminus of the polypeptide and techniques known in the art may be applied to generate multimers containing one or more of these modified polypeptides (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). Additionally, techniques known in the art may be applied to generate liposomes containing the

20       polypeptide components desired to be contained in the multimer of the invention (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

          Alternatively, multimers of the invention may be generated using genetic engineering techniques known in the art. In one embodiment, polypeptides contained

25       in multimers of the invention are produced recombinantly using fusion protein technology described herein or otherwise known in the art (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In a specific embodiment, polynucleotides coding for a homodimer of the invention are generated by ligating a polynucleotide sequence encoding a polypeptide of the

30       invention to a sequence encoding a linker polypeptide and then further to a synthetic

polynucleotide encoding the translated product of the polypeptide in the reverse orientation from the original C-terminus to the N-terminus (lacking the leader sequence) (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety). In another embodiment, recombinant techniques described  
5 herein or otherwise known in the art are applied to generate recombinant polypeptides of the invention which contain a transmembrane domain (or hydrophobic or signal peptide) and which can be incorporated by membrane reconstitution techniques into liposomes (see, e.g., US Patent Number 5,478,925, which is herein incorporated by reference in its entirety).

### Antibodies

Further polypeptides of the invention relate to antibodies and T-cell antigen receptors (TCR) which immunospecifically bind a polypeptide, polypeptide fragment, or variant of SEQ ID NO:Y, and/or an epitope, of the present invention (as  
15 determined by immunoassays well known in the art for assaying specific antibody-antigen binding). Antibodies of the invention include, but are not limited to, polyclonal, monoclonal, multispecific, human, humanized or chimeric antibodies, single chain antibodies, Fab fragments, F(ab') fragments, fragments produced by a Fab expression library, anti-idiotypic (anti-Id) antibodies (including, e.g., anti-Id  
20 antibodies to antibodies of the invention), and epitope-binding fragments of any of the above. The term "antibody," as used herein, refers to immunoglobulin molecules and immunologically active portions of immunoglobulin molecules, i.e., molecules that contain an antigen binding site that immunospecifically binds an antigen. The immunoglobulin molecules of the invention can be of any type (e.g., IgG, IgE, IgM,  
25 IgD, IgA and IgY), class (e.g., IgG1, IgG2, IgG3, IgG4, IgA1 and IgA2) or subclass of immunoglobulin molecule.

Most preferably the antibodies are human antigen-binding antibody fragments of the present invention and include, but are not limited to, Fab, Fab' and F(ab')<sub>2</sub>, Fd, single-chain Fvs (scFv), single-chain antibodies, disulfide-linked Fvs (sdFv) and  
30 fragments comprising either a VL or VH domain. Antigen-binding antibody

fragments, including single-chain antibodies, may comprise the variable region(s) alone or in combination with the entirety or a portion of the following: hinge region, CH1, CH2, and CH3 domains. Also included in the invention are antigen-binding fragments also comprising any combination of variable region(s) with a hinge region, CH1, CH2, and CH3 domains. The antibodies of the invention may be from any animal origin including birds and mammals. Preferably, the antibodies are human, murine (e.g., mouse and rat), donkey, sheep rabbit, goat, guinea pig, camel, horse, or chicken. As used herein, "human" antibodies include antibodies having the amino acid sequence of a human immunoglobulin and include antibodies isolated from human immunoglobulin libraries or from animals transgenic for one or more human immunoglobulin and that do not express endogenous immunoglobulins, as described infra and, for example in, U.S. Patent No. 5,939,598 by Kucherlapati et al.

The antibodies of the present invention may be monospecific, bispecific, trispecific or of greater multispecificity. Multispecific antibodies may be specific for different epitopes of a polypeptide of the present invention or may be specific for both a polypeptide of the present invention as well as for a heterologous epitope, such as a heterologous polypeptide or solid support material. See, e.g., PCT publications WO 93/17715; WO 92/08802; WO 91/00360; WO 92/05793; Tutt, et al., J. Immunol. 147:60-69 (1991); U.S. Patent Nos. 4,474,893; 4,714,681; 4,925,648; 5,573,920; 5,601,819; Kostelny et al., J. Immunol. 148:1547-1553 (1992).

Antibodies of the present invention may be described or specified in terms of the epitope(s) or portion(s) of a polypeptide of the present invention which they recognize or specifically bind. The epitope(s) or polypeptide portion(s) may be specified as described herein, e.g., by N-terminal and C-terminal positions, or by size in contiguous amino acid residues. Antibodies which specifically bind any epitope or polypeptide of the present invention may also be excluded. Therefore, the present invention includes antibodies that specifically bind polypeptides of the present invention, and allows for the exclusion of the same.

Antibodies of the present invention may also be described or specified in terms of their cross-reactivity. Antibodies that do not bind any other analog, ortholog,

or homolog of a polypeptide of the present invention are included. Antibodies that bind polypeptides with at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 65%, at least 60%, at least 55%, and at least 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In specific embodiments, antibodies of the present invention cross-react with murine, rat and/or rabbit homologs of human proteins and the corresponding epitopes thereof. Antibodies that do not bind polypeptides with less than 95%, less than 90%, less than 85%, less than 80%, less than 75%, less than 70%, less than 65%, less than 60%, less than 55%, and less than 50% identity (as calculated using methods known in the art and described herein) to a polypeptide of the present invention are also included in the present invention. In a specific embodiment, the above-described cross-reactivity is with respect to any single specific antigenic or immunogenic polypeptide, or combination(s) of 2, 3, 4, 5, or more of the specific antigenic and/or immunogenic polypeptides disclosed herein. Further included in the present invention are antibodies which bind polypeptides encoded by polynucleotides which hybridize to a polynucleotide of the present invention under stringent hybridization conditions (as described herein). Antibodies of the present invention may also be described or specified in terms of their binding affinity to a polypeptide of the invention. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-2}$  M,  $10^{-2}$  M,  $5 \times 10^{-3}$  M,  $10^{-3}$  M,  $5 \times 10^{-4}$  M,  $10^{-4}$  M,  $5 \times 10^{-5}$  M,  $10^{-5}$  M,  $5 \times 10^{-6}$  M,  $10^{-6}$  M,  $5 \times 10^{-7}$  M,  $10^{-7}$  M,  $5 \times 10^{-8}$  M,  $10^{-8}$  M,  $5 \times 10^{-9}$  M,  $10^{-9}$  M,  $5 \times 10^{-10}$  M,  $10^{-10}$  M,  $5 \times 10^{-11}$  M,  $10^{-11}$  M,  $5 \times 10^{-12}$  M,  $10^{-12}$  M,  $5 \times 10^{-13}$  M,  $10^{-13}$  M,  $5 \times 10^{-14}$  M,  $10^{-14}$  M,  $5 \times 10^{-15}$  M, or  $10^{-15}$  M.

The invention also provides antibodies that competitively inhibit binding of an antibody to an epitope of the invention as determined by any method known in the art for determining competitive binding, for example, the immunoassays described herein. In preferred embodiments, the antibody competitively inhibits binding to the epitope by at least 95%, at least 90%, at least 85 %, at least 80%, at least 75%, at least 70%, at least 60%, or at least 50%.

Antibodies of the present invention may act as agonists or antagonists of the polypeptides of the present invention. For example, the present invention includes antibodies which disrupt the receptor/ligand interactions with the polypeptides of the invention either partially or fully. Preferably, antibodies of the present invention  
5 bind an antigenic epitope disclosed herein, or a portion thereof. The invention features both receptor-specific antibodies and ligand-specific antibodies. The invention also features receptor-specific antibodies which do not prevent ligand binding but prevent receptor activation. Receptor activation (i.e., signaling) may be determined by techniques described herein or otherwise known in the art. For example, receptor  
10 activation can be determined by detecting the phosphorylation (e.g., tyrosine or serine/threonine) of the receptor or its substrate by immunoprecipitation followed by western blot analysis (for example, as described supra). In specific embodiments, antibodies are provided that inhibit ligand activity or receptor activity by at least 95%, at least 90%, at least 85%, at least 80%, at least 75%, at least 70%, at least 60%, or at  
15 least 50% of the activity in absence of the antibody.

The invention also features receptor-specific antibodies which both prevent ligand binding and receptor activation, as well as antibodies that recognize the receptor-ligand complex, and, preferably, do not specifically recognize the unbound receptor or the unbound ligand. Likewise, included in the invention are neutralizing  
20 antibodies which bind the ligand and prevent binding of the ligand to the receptor, as well as antibodies which bind the ligand, thereby preventing receptor activation, but do not prevent the ligand from binding the receptor. Further included in the invention are antibodies which activate the receptor. These antibodies may act as receptor agonists, i.e., potentiate or activate either all or a subset of the biological activities of  
25 the ligand-mediated receptor activation, for example, by inducing dimerization of the receptor. The antibodies may be specified as agonists, antagonists or inverse agonists for biological activities comprising the specific biological activities of the peptides of the invention disclosed herein. The above antibody agonists can be made using methods known in the art. See, e.g., PCT publication WO 96/40281; U.S. Patent No.  
30 5,811,097; Deng et al., Blood 92(6):1981-1988 (1998); Chen et al., Cancer Res.



58(16):3668-3678 (1998); Harrop et al., J. Immunol. 161(4):1786-1794 (1998); Zhu et al., Cancer Res. 58(15):3209-3214 (1998); Yoon et al., J. Immunol. 160(7):3170-3179 (1998); Prat et al., J. Cell. Sci. 111(Pt2):237-247 (1998); Pitard et al., J. Immunol. Methods 205(2):177-190 (1997); Liautard et al., Cytokine 9(4):233-241 (1997); Carlson et al., J. Biol. Chem. 272(17):11295-11301 (1997); Taryman et al., Neuron 14(4):755-762 (1995); Muller et al., Structure 6(9):1153-1167 (1998); Bartunek et al., Cytokine 8(1):14-20 (1996) (which are all incorporated by reference herein in their entireties).

Antibodies of the present invention may be used, for example, but not limited to, to purify, detect, and target the polypeptides of the present invention, including both in vitro and in vivo diagnostic and therapeutic methods. For example, the antibodies have use in immunoassays for qualitatively and quantitatively measuring levels of the polypeptides of the present invention in biological samples. See, e.g., Harlow et al., Antibodies: A Laboratory Manual, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988) (incorporated by reference herein in its entirety).

As discussed in more detail below, the antibodies of the present invention may be used either alone or in combination with other compositions. The antibodies may further be recombinantly fused to a heterologous polypeptide at the N- or C-terminus or chemically conjugated (including covalently and non-covalently conjugations) to polypeptides or other compositions. For example, antibodies of the present invention may be recombinantly fused or conjugated to molecules useful as labels in detection assays and effector molecules such as heterologous polypeptides, drugs, radionuclides, or toxins. See, e.g., PCT publications WO 92/08495; WO 91/14438; WO 89/12624; U.S. Patent No. 5,314,995; and EP 396,387.

The antibodies of the invention include derivatives that are modified, i.e., by the covalent attachment of any type of molecule to the antibody such that covalent attachment does not prevent the antibody from generating an anti-idiotypic response. For example, but not by way of limitation, the antibody derivatives include antibodies that have been modified, e.g., by glycosylation, acetylation, pegylation, phosphorylation, amidation, derivatization by known protecting/blocking groups,

proteolytic cleavage, linkage to a cellular ligand or other protein. etc. Any of numerous chemical modifications may be carried out by known techniques, including, but not limited to specific chemical cleavage, acetylation, formylation, metabolic synthesis of tunicamycin. etc. Additionally, the derivative may contain one or more  
5 non-classical amino acids.

The antibodies of the present invention may be generated by any suitable method known in the art. Polyclonal antibodies to an antigen-of- interest can be produced by various procedures well known in the art. For example, a polypeptide of the invention can be administered to various host animals including, but not limited  
10 to, rabbits, mice, rats, etc. to induce the production of sera containing polyclonal antibodies specific for the antigen. Various adjuvants may be used to increase the immunological response, depending on the host species, and include but are not limited to, Freund's (complete and incomplete), mineral gels such as aluminum hydroxide, surface active substances such as lysolecithin, pluronic polyols.  
15 polyanions, peptides, oil emulsions, keyhole limpet hemocyanins, dinitrophenol, and potentially useful human adjuvants such as BCG (bacille Calmette-Guerin) and corynebacterium parvum. Such adjuvants are also well known in the art.

Monoclonal antibodies can be prepared using a wide variety of techniques known in the art including the use of hybridoma, recombinant, and phage display  
20 technologies, or a combination thereof. For example, monoclonal antibodies can be produced using hybridoma techniques including those known in the art and taught, for example, in Harlow et al., Antibodies: A Laboratory Manual, (Cold Spring Harbor Laboratory Press, 2nd ed. 1988); Hammerling, et al., in: Monoclonal Antibodies and T-Cell Hybridomas 563-681 (Elsevier, N.Y., 1981) (said references incorporated by  
25 reference in their entireties). The term "monoclonal antibody" as used herein is not limited to antibodies produced through hybridoma technology. The term "monoclonal antibody" refers to an antibody that is derived from a single clone, including any eukaryotic, prokaryotic, or phage clone, and not the method by which it is produced.

Methods for producing and screening for specific antibodies using hybridoma technology are routine and well known in the art and are discussed in detail in the Examples. In a non-limiting example, mice can be immunized with a polypeptide of the invention or a cell expressing such peptide. Once an immune response is detected, e.g., antibodies specific for the antigen are detected in the mouse serum, the mouse spleen is harvested and splenocytes isolated. The splenocytes are then fused by well known techniques to any suitable myeloma cells, for example cells from cell line SP20 available from the ATCC. Hybridomas are selected and cloned by limited dilution. The hybridoma clones are then assayed by methods known in the art for cells that secrete antibodies capable of binding a polypeptide of the invention. Ascites fluid, which generally contains high levels of antibodies, can be generated by immunizing mice with positive hybridoma clones.

Accordingly, the present invention provides methods of generating monoclonal antibodies as well as antibodies produced by the method comprising culturing a hybridoma cell secreting an antibody of the invention wherein, preferably, the hybridoma is generated by fusing splenocytes isolated from a mouse immunized with an antigen of the invention with myeloma cells and then screening the hybridomas resulting from the fusion for hybridoma clones that secrete an antibody able to bind a polypeptide of the invention.

Antibody fragments which recognize specific epitopes may be generated by known techniques. For example, Fab and F(ab')<sub>2</sub> fragments of the invention may be produced by proteolytic cleavage of immunoglobulin molecules, using enzymes such as papain (to produce Fab fragments) or pepsin (to produce F(ab')<sub>2</sub> fragments). F(ab')<sub>2</sub> fragments contain the variable region, the light chain constant region and the CH1 domain of the heavy chain.

For example, the antibodies of the present invention can also be generated using various phage display methods known in the art. In phage display methods, functional antibody domains are displayed on the surface of phage particles which carry the polynucleotide sequences encoding them. In a particular embodiment, such phage can be utilized to display antigen binding domains expressed from a repertoire

or combinatorial antibody library (e.g., human or murine). Phage expressing an antigen binding domain that binds the antigen of interest can be selected or identified with antigen, e.g., using labeled antigen or antigen bound or captured to a solid surface or bead. Phage used in these methods are typically filamentous phage including fd and M13 binding domains expressed from phage with Fab, Fv or disulfide stabilized Fv antibody domains recombinantly fused to either the phage gene III or gene VIII protein. Examples of phage display methods that can be used to make the antibodies of the present invention include those disclosed in Brinkman et al., J. Immunol. Methods 182:41-50 (1995); Ames et al., J. Immunol. Methods 184:177-186 (1995); Kettleborough et al., Eur. J. Immunol. 24:952-958 (1994); Persic et al., Gene 187 9-18 (1997); Burton et al., Advances in Immunology 57:191-280 (1994); PCT application No. PCT/GB91/01134; PCT publications WO 90/02809; WO 91/10737; WO 92/01047; WO 92/18619; WO 93/11236; WO 95/15982; WO 95/20401; and U.S. Patent Nos. 5,698,426; 5,223,409; 5,403,484; 5,580,717; 5,427,908; 5,750,753; 5,821,047; 5,571,698; 5,427,908; 5,516,637; 5,780,225; 5,658,727; 5,733,743 and 5,969,108; each of which is incorporated herein by reference in its entirety.

As described in the above references, after phage selection, the antibody coding regions from the phage can be isolated and used to generate whole antibodies, including human antibodies, or any other desired antigen binding fragment, and expressed in any desired host, including mammalian cells, insect cells, plant cells, yeast, and bacteria, e.g., as described in detail below. For example, techniques to recombinantly produce Fab, Fab' and F(ab')<sub>2</sub> fragments can also be employed using methods known in the art such as those disclosed in PCT publication WO 92/22324; Mullinax et al., BioTechniques 12(6):864-869 (1992); and Sawai et al., AJRI 34:26-34 (1995); and Better et al., Science 240:1041-1043 (1988) (said references incorporated by reference in their entireties).

Examples of techniques which can be used to produce single-chain Fvs and antibodies include those described in U.S. Patents 4,946,778 and 5,258,498; Huston et al., Methods in Enzymology 203:46-88 (1991); Shu et al., PNAS 90:7995-7999

(1993); and Skerra et al., Science 240:1038-1040 (1988). For some uses, including in vivo use of antibodies in humans and in vitro detection assays, it may be preferable to use chimeric, humanized, or human antibodies. A chimeric antibody is a molecule in which different portions of the antibody are derived from different animal species, such as antibodies having a variable region derived from a murine monoclonal antibody and a human immunoglobulin constant region. Methods for producing chimeric antibodies are known in the art. See e.g., Morrison, Science 229:1202 (1985); Oi et al., BioTechniques 4:214 (1986); Gillies et al., (1989) J. Immunol. Methods 125:191-202; U.S. Patent Nos. 5,807,715; 4,816,567; and 4,816,397, which are incorporated herein by reference in their entirety. Humanized antibodies are antibody molecules from non-human species antibody that binds the desired antigen having one or more complementarity determining regions (CDRs) from the non-human species and a framework regions from a human immunoglobulin molecule. Often, framework residues in the human framework regions will be substituted with the corresponding residue from the CDR donor antibody to alter, preferably improve, antigen binding. These framework substitutions are identified by methods well known in the art, e.g., by modeling of the interactions of the CDR and framework residues to identify framework residues important for antigen binding and sequence comparison to identify unusual framework residues at particular positions. (See, e.g., Queen et al., U.S. Patent No. 5,585,089; Riechmann et al., Nature 332:323 (1988), which are incorporated herein by reference in their entirety.) Antibodies can be humanized using a variety of techniques known in the art including, for example, CDR-grafting (EP 239,400; PCT publication WO 91/09967; U.S. Patent Nos. 5,225,539; 5,530,101; and 5,585,089), veneering or resurfacing (EP 592,106; EP 519,596; Padlan, Molecular Immunology 28(4/5):489-498 (1991); Studnicka et al., Protein Engineering 7(6):805-814 (1994); Roguska et al., PNAS 91:969-973 (1994)), and chain shuffling (U.S. Patent No. 5,565,332).

Completely human antibodies are particularly desirable for therapeutic treatment of human patients. Human antibodies can be made by a variety of methods known in the art including phage display methods described above using antibody

libraries derived from human immunoglobulin sequences. See also, U.S. Patent Nos. 4,444,887 and 4,716,111; and PCT publications WO 98/46645, WO 98/50433, WO 98/24893, WO 98/16654, WO 96/34096, WO 96/33735, and WO 91/10741; each of which is incorporated herein by reference in its entirety.

5 Human antibodies can also be produced using transgenic mice which are incapable of expressing functional endogenous immunoglobulins, but which can express human immunoglobulin genes. For example, the human heavy and light chain immunoglobulin gene complexes may be introduced randomly or by homologous recombination into mouse embryonic stem cells. Alternatively, the  
10 human variable region, constant region, and diversity region may be introduced into mouse embryonic stem cells in addition to the human heavy and light chain genes. The mouse heavy and light chain immunoglobulin genes may be rendered non-functional separately or simultaneously with the introduction of human immunoglobulin loci by homologous recombination. In particular, homozygous  
15 deletion of the JH region prevents endogenous antibody production. The modified embryonic stem cells are expanded and microinjected into blastocysts to produce chimeric mice. The chimeric mice are then bred to produce homozygous offspring which express human antibodies. The transgenic mice are immunized in the normal fashion with a selected antigen, e.g., all or a portion of a polypeptide of the invention.  
20 Monoclonal antibodies directed against the antigen can be obtained from the immunized, transgenic mice using conventional hybridoma technology. The human immunoglobulin transgenes harbored by the transgenic mice rearrange during B cell differentiation, and subsequently undergo class switching and somatic mutation. Thus, using such a technique, it is possible to produce therapeutically useful IgG,  
25 IgA, IgM and IgE antibodies. For an overview of this technology for producing human antibodies, see Lonberg and Huszar, Int. Rev. Immunol. 13:65-93 (1995). For a detailed discussion of this technology for producing human antibodies and human monoclonal antibodies and protocols for producing such antibodies, see, e.g., PCT publications WO 98/24893; WO 92/01047; WO 96/34096; WO 96/33735; European  
30 Patent No. 0 598 877; U.S. Patent Nos. 5,413,923; 5,625,126; 5,633,425; 5,569,825;

5,661,016; 5,545,806; 5,814,318; 5,885,793; 5,916,771; and 5,939,598, which are incorporated by reference herein in their entirety. In addition, companies such as Abgenix, Inc. (Freemont, CA) and Genpharm (San Jose, CA) can be engaged to provide human antibodies directed against a selected antigen using technology similar to that described above.

Completely human antibodies which recognize a selected epitope can be generated using a technique referred to as "guided selection." In this approach a selected non-human monoclonal antibody, e.g., a mouse antibody, is used to guide the selection of a completely human antibody recognizing the same epitope. (Jespers et al., Bio/technology 12:899-903 (1988)).

Further, antibodies to the polypeptides of the invention can, in turn, be utilized to generate anti-idiotypic antibodies that "mimic" polypeptides of the invention using techniques well known to those skilled in the art. (See, e.g., Greenspan & Bona, FASEB J. 7(5):437-444; (1989) and Nissinoff, J. Immunol. 147(8):2429-2438 (1991)). For example, antibodies which bind to and competitively inhibit polypeptide multimerization and/or binding of a polypeptide of the invention to a ligand can be used to generate anti-idiotypes that "mimic" the polypeptide multimerization and/or binding domain and, as a consequence, bind to and neutralize polypeptide and/or its ligand. Such neutralizing anti-idiotypes or Fab fragments of such anti-idiotypes can be used in therapeutic regimens to neutralize polypeptide ligand. For example, such anti-idiotypic antibodies can be used to bind a polypeptide of the invention and/or to bind its ligands/receptors, and thereby block its biological activity.

### ***Polynucleotides Encoding Antibodies***

The invention further provides polynucleotides comprising a nucleotide sequence encoding an antibody of the invention and fragments thereof. The invention also encompasses polynucleotides that hybridize under stringent or alternatively, under lower stringency hybridization conditions, e.g., as defined supra, to polynucleotides that encode an antibody, preferably, that specifically binds to a

polypeptide of the invention, preferably, an antibody that binds to a polypeptide having the amino acid sequence of SEQ ID NO:Y.

The polynucleotides may be obtained, and the nucleotide sequence of the polynucleotides determined, by any method known in the art. For example, if the nucleotide sequence of the antibody is known, a polynucleotide encoding the antibody may be assembled from chemically synthesized oligonucleotides (e.g., as described in Kutmeier et al., *BioTechniques* 17:242 (1994)), which, briefly, involves the synthesis of overlapping oligonucleotides containing portions of the sequence encoding the antibody, annealing and ligating of those oligonucleotides, and then amplification of the ligated oligonucleotides by PCR.

Alternatively, a polynucleotide encoding an antibody may be generated from nucleic acid from a suitable source. If a clone containing a nucleic acid encoding a particular antibody is not available, but the sequence of the antibody molecule is known, a nucleic acid encoding the immunoglobulin may be chemically synthesized or obtained from a suitable source (e.g., an antibody cDNA library, or a cDNA library generated from, or nucleic acid, preferably poly A+ RNA, isolated from, any tissue or cells expressing the antibody, such as hybridoma cells selected to express an antibody of the invention) by PCR amplification using synthetic primers hybridizable to the 3' and 5' ends of the sequence or by cloning using an oligonucleotide probe specific for the particular gene sequence to identify, e.g., a cDNA clone from a cDNA library that encodes the antibody. Amplified nucleic acids generated by PCR may then be cloned into replicable cloning vectors using any method well known in the art.

Once the nucleotide sequence and corresponding amino acid sequence of the antibody is determined, the nucleotide sequence of the antibody may be manipulated using methods well known in the art for the manipulation of nucleotide sequences, e.g., recombinant DNA techniques, site directed mutagenesis, PCR, etc. (see, for example, the techniques described in Sambrook et al., 1990, *Molecular Cloning, A Laboratory Manual*, 2d Ed., Cold Spring Harbor Laboratory, Cold Spring Harbor, NY and Ausubel et al., eds., 1998, *Current Protocols in Molecular Biology*, John Wiley &



Sons. NY, which are both incorporated by reference herein in their entireties ), to generate antibodies having a different amino acid sequence. for example to create amino acid substitutions, deletions, and/or insertions.

In a specific embodiment, the amino acid sequence of the heavy and/or light chain variable domains may be inspected to identify the sequences of the complementarity determining regions (CDRs) by methods that are well know in the art. e.g., by comparison to known amino acid sequences of other heavy and light chain variable regions to determine the regions of sequence hypervariability. Using routine recombinant DNA techniques, one or more of the CDRs may be inserted within framework regions, e.g., into human framework regions to humanize a non-human antibody, as described supra. The framework regions may be naturally occurring or consensus framework regions, and preferably human framework regions (see, e.g., Chothia et al., J. Mol. Biol. 278: 457-479 (1998) for a listing of human framework regions). Preferably, the polynucleotide generated by the combination of the framework regions and CDRs encodes an antibody that specifically binds a polypeptide of the invention. Preferably, as discussed supra, one or more amino acid substitutions may be made within the framework regions, and, preferably, the amino acid substitutions improve binding of the antibody to its antigen. Additionally, such methods may be used to make amino acid substitutions or deletions of one or more variable region cysteine residues participating in an intrachain disulfide bond to generate antibody molecules lacking one or more intrachain disulfide bonds. Other alterations to the polynucleotide are encompassed by the present invention and within the skill of the art.

In addition, techniques developed for the production of "chimeric antibodies" (Morrison et al., Proc. Natl. Acad. Sci. 81:851-855 (1984); Neuberger et al., Nature 312:604-608 (1984); Takeda et al., Nature 314:452-454 (1985)) by splicing genes from a mouse antibody molecule of appropriate antigen specificity together with genes from a human antibody molecule of appropriate biological activity can be used. As described supra, a chimeric antibody is a molecule in which different portions are derived from different animal species, such as those having a variable region derived

from a murine mAb and a human immunoglobulin constant region. e.g., humanized antibodies.

Alternatively, techniques described for the production of single chain antibodies (U.S. Patent No. 4,946,778; Bird, Science 242:423- 42 (1988); Huston et al., Proc. Natl. Acad. Sci. USA 85:5879-5883 (1988); and Ward et al., Nature 334:544-54 (1989)) can be adapted to produce single chain antibodies. Single chain antibodies are formed by linking the heavy and light chain fragments of the Fv region via an amino acid bridge, resulting in a single chain polypeptide. Techniques for the assembly of functional Fv fragments in E. coli may also be used (Skerra et al., Science 242:1038- 1041 (1988)).

#### *Methods of Producing Antibodies*

The antibodies of the invention can be produced by any method known in the art for the synthesis of antibodies, in particular, by chemical synthesis or preferably, by recombinant expression techniques.

Recombinant expression of an antibody of the invention, or fragment, derivative or analog thereof, (e.g., a heavy or light chain of an antibody of the invention or a single chain antibody of the invention), requires construction of an expression vector containing a polynucleotide that encodes the antibody. Once a polynucleotide encoding an antibody molecule or a heavy or light chain of an antibody, or portion thereof (preferably containing the heavy or light chain variable domain), of the invention has been obtained, the vector for the production of the antibody molecule may be produced by recombinant DNA technology using techniques well known in the art. Thus, methods for preparing a protein by expressing a polynucleotide containing an antibody encoding nucleotide sequence are described herein. Methods which are well known to those skilled in the art can be used to construct expression vectors containing antibody coding sequences and appropriate transcriptional and translational control signals. These methods include, for example, in vitro recombinant DNA techniques, synthetic techniques, and in vivo genetic recombination. The invention, thus, provides replicable vectors comprising a

nucleotide sequence encoding an antibody molecule of the invention, or a heavy or light chain thereof, or a heavy or light chain variable domain, operably linked to a promoter. Such vectors may include the nucleotide sequence encoding the constant region of the antibody molecule (see, e.g., PCT Publication WO 86/05807; PCT  
5 Publication WO 89/01036; and U.S. Patent No. 5,122,464) and the variable domain of the antibody may be cloned into such a vector for expression of the entire heavy or light chain.

The expression vector is transferred to a host cell by conventional techniques and the transfected cells are then cultured by conventional techniques to produce an  
10 antibody of the invention. Thus, the invention includes host cells containing a polynucleotide encoding an antibody of the invention, or a heavy or light chain thereof, or a single chain antibody of the invention, operably linked to a heterologous promoter. In preferred embodiments for the expression of double-chained antibodies, vectors encoding both the heavy and light chains may be co-expressed in the host cell  
15 for expression of the entire immunoglobulin molecule, as detailed below.

A variety of host-expression vector systems may be utilized to express the antibody molecules of the invention. Such host-expression systems represent vehicles by which the coding sequences of interest may be produced and subsequently purified, but also represent cells which may, when transformed or transfected with  
20 the appropriate nucleotide coding sequences, express an antibody molecule of the invention in situ. These include but are not limited to microorganisms such as bacteria (e.g., *E. coli*, *B. subtilis*) transformed with recombinant bacteriophage DNA, plasmid DNA or cosmid DNA expression vectors containing antibody coding sequences; yeast (e.g., *Saccharomyces*, *Pichia*) transformed with recombinant yeast  
25 expression vectors containing antibody coding sequences; insect cell systems infected with recombinant virus expression vectors (e.g., baculovirus) containing antibody coding sequences; plant cell systems infected with recombinant virus expression vectors (e.g., cauliflower mosaic virus, CaMV; tobacco mosaic virus, TMV) or transformed with recombinant plasmid expression vectors (e.g., Ti plasmid)  
30 containing antibody coding sequences; or mammalian cell systems (e.g., COS, CHO,

BHK. 293, 3T3 cells) harboring recombinant expression constructs containing promoters derived from the genome of mammalian cells (e.g., metallothionein promoter) or from mammalian viruses (e.g., the adenovirus late promoter; the vaccinia virus 7.5K promoter). Preferably, bacterial cells such as *Escherichia coli*,  
5 and more preferably, eukaryotic cells, especially for the expression of whole recombinant antibody molecule, are used for the expression of a recombinant antibody molecule. For example, mammalian cells such as Chinese hamster ovary cells (CHO), in conjunction with a vector such as the major intermediate early gene promoter element from human cytomegalovirus is an effective expression system for  
10 antibodies (Foecking et al., *Gene* 45:101 (1986); Cockett et al., *Bio/Technology* 8:2 (1990)).

In bacterial systems, a number of expression vectors may be advantageously selected depending upon the use intended for the antibody molecule being expressed. For example, when a large quantity of such a protein is to be produced, for the  
15 generation of pharmaceutical compositions of an antibody molecule, vectors which direct the expression of high levels of fusion protein products that are readily purified may be desirable. Such vectors include, but are not limited, to the *E. coli* expression vector pUR278 (Ruther et al., *EMBO J.* 2:1791 (1983)), in which the antibody coding sequence may be ligated individually into the vector in frame with the lac Z coding  
20 region so that a fusion protein is produced; pIN vectors (Inouye & Inouye, *Nucleic Acids Res.* 13:3101-3109 (1985); Van Heeke & Schuster, *J. Biol. Chem.* 24:5503-5509 (1989)); and the like. pGEX vectors may also be used to express foreign polypeptides as fusion proteins with glutathione S-transferase (GST). In general, such fusion proteins are soluble and can easily be purified from lysed cells by  
25 adsorption and binding to matrix glutathione-agarose beads followed by elution in the presence of free glutathione. The pGEX vectors are designed to include thrombin or factor Xa protease cleavage sites so that the cloned target gene product can be released from the GST moiety.

In an insect system, *Autographa californica* nuclear polyhedrosis virus  
30 (AcNPV) is used as a vector to express foreign genes. The virus grows in

*Spodoptera frugiperda* cells. The antibody coding sequence may be cloned individually into non-essential regions (for example the polyhedrin gene) of the virus and placed under control of an AcNPV promoter (for example the polyhedrin promoter).

5 In mammalian host cells, a number of viral-based expression systems may be utilized. In cases where an adenovirus is used as an expression vector, the antibody coding sequence of interest may be ligated to an adenovirus transcription/translation control complex, e.g., the late promoter and tripartite leader sequence. This chimeric gene may then be inserted in the adenovirus genome by in vitro or in vivo  
10 recombination. Insertion in a non-essential region of the viral genome (e.g., region E1 or E3) will result in a recombinant virus that is viable and capable of expressing the antibody molecule in infected hosts. (e.g., see Logan & Shenk, Proc. Natl. Acad. Sci. USA 81:355-359 (1984)). Specific initiation signals may also be required for efficient translation of inserted antibody coding sequences. These signals include the  
15 ATG initiation codon and adjacent sequences. Furthermore, the initiation codon must be in phase with the reading frame of the desired coding sequence to ensure translation of the entire insert. These exogenous translational control signals and initiation codons can be of a variety of origins, both natural and synthetic. The efficiency of expression may be enhanced by the inclusion of appropriate  
20 transcription enhancer elements, transcription terminators, etc. (see Bittner et al., Methods in Enzymol. 153:51-544 (1987)).

In addition, a host cell strain may be chosen which modulates the expression of the inserted sequences, or modifies and processes the gene product in the specific fashion desired. Such modifications (e.g., glycosylation) and processing (e.g.,  
25 cleavage) of protein products may be important for the function of the protein. Different host cells have characteristic and specific mechanisms for the post-translational processing and modification of proteins and gene products. Appropriate cell lines or host systems can be chosen to ensure the correct modification and processing of the foreign protein expressed. To this end, eukaryotic host cells which  
30 possess the cellular machinery for proper processing of the primary transcript.

glycosylation, and phosphorylation of the gene product may be used. Such mammalian host cells include but are not limited to CHO, VERY, BHK, Hela, COS, MDCK, 293, 3T3, WI38, and in particular, breast cancer cell lines such as, for example, BT483, Hs578T, HTB2, BT20 and T47D, and normal mammary gland cell  
5 line such as, for example, CRL7030 and Hs578Bst.

For long-term, high-yield production of recombinant proteins, stable expression is preferred. For example, cell lines which stably express the antibody molecule may be engineered. Rather than using expression vectors which contain viral origins of replication, host cells can be transformed with DNA controlled by  
10 appropriate expression control elements (e.g., promoter, enhancer, sequences, transcription terminators, polyadenylation sites, etc.), and a selectable marker. Following the introduction of the foreign DNA, engineered cells may be allowed to grow for 1-2 days in an enriched media, and then are switched to a selective media. The selectable marker in the recombinant plasmid confers resistance to the selection  
15 and allows cells to stably integrate the plasmid into their chromosomes and grow to form foci which in turn can be cloned and expanded into cell lines. This method may advantageously be used to engineer cell lines which express the antibody molecule. Such engineered cell lines may be particularly useful in screening and evaluation of compounds that interact directly or indirectly with the antibody molecule.

20 A number of selection systems may be used, including but not limited to the herpes simplex virus thymidine kinase (Wigler et al., Cell 11:223 (1977)), hypoxanthine-guanine phosphoribosyltransferase (Szybalska & Szybalski, Proc. Natl. Acad. Sci. USA 48:202 (1992)), and adenine phosphoribosyltransferase (Lowy et al., Cell 22:817 (1980)) genes can be employed in tk-, hgp<sup>r</sup>t- or ap<sup>r</sup>t- cells, respectively.  
25 Also, antimetabolite resistance can be used as the basis of selection for the following genes: dhfr, which confers resistance to methotrexate (Wigler et al., Natl. Acad. Sci. USA 77:357 (1980); O'Hare et al., Proc. Natl. Acad. Sci. USA 78:1527 (1981)); gpt, which confers resistance to mycophenolic acid (Mulligan & Berg, Proc. Natl. Acad. Sci. USA 78:2072 (1981)); neo, which confers resistance to the aminoglycoside G-  
30 418 Clinical Pharmacy 12:488-505; Wu and Wu, Biotherapy 3:87-95 (1991);

Tolstoshev, *Ann. Rev. Pharmacol. Toxicol.* 32:573-596 (1993); Mulligan, *Science* 260:926-932 (1993); and Morgan and Anderson, *Ann. Rev. Biochem.* 62:191-217 (1993); May, 1993, *TIB TECH* 11(5):155-215); and hygromycin (Santerre et al., *Gene* 30:147 (1984)). Methods commonly known in the art of recombinant DNA technology may be routinely applied to select the desired recombinant clone, and such methods are described, for example, in Ausubel et al. (eds.), *Current Protocols in Molecular Biology*, John Wiley & Sons, NY (1993); Kriegler, *Gene Transfer and Expression, A Laboratory Manual*, Stockton Press, NY (1990); and in Chapters 12 and 13, Dracopoli et al. (eds), *Current Protocols in Human Genetics*, John Wiley & Sons, NY (1994); Colberre-Garapin et al., *J. Mol. Biol.* 150:1 (1981), which are incorporated by reference herein in their entireties.

The expression levels of an antibody molecule can be increased by vector amplification (for a review, see Bebbington and Hentschel, *The use of vectors based on gene amplification for the expression of cloned genes in mammalian cells in DNA cloning*, Vol.3. (Academic Press, New York, 1987)). When a marker in the vector system expressing antibody is amplifiable, increase in the level of inhibitor present in culture of host cell will increase the number of copies of the marker gene. Since the amplified region is associated with the antibody gene, production of the antibody will also increase (Crouse et al., *Mol. Cell. Biol.* 3:257 (1983)).

The host cell may be co-transfected with two expression vectors of the invention, the first vector encoding a heavy chain derived polypeptide and the second vector encoding a light chain derived polypeptide. The two vectors may contain identical selectable markers which enable equal expression of heavy and light chain polypeptides. Alternatively, a single vector may be used which encodes, and is capable of expressing, both heavy and light chain polypeptides. In such situations, the light chain should be placed before the heavy chain to avoid an excess of toxic free heavy chain (Proudfoot, *Nature* 322:52 (1986); Kohler, *Proc. Natl. Acad. Sci. USA* 77:2197 (1980)). The coding sequences for the heavy and light chains may comprise cDNA or genomic DNA.

Once an antibody molecule of the invention has been produced by an animal, chemically synthesized, or recombinantly expressed, it may be purified by any method known in the art for purification of an immunoglobulin molecule. for example, by chromatography (e.g., ion exchange, affinity, particularly by affinity for  
5 the specific antigen after Protein A, and sizing column chromatography), centrifugation, differential solubility, or by any other standard technique for the purification of proteins. In addition, the antibodies of the present invention or fragments thereof can be fused to heterologous polypeptide sequences described herein or otherwise known in the art, to facilitate purification.

10 The present invention encompasses antibodies recombinantly fused or chemically conjugated (including both covalently and non-covalently conjugations) to a polypeptide (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention to generate fusion proteins. The fusion does not necessarily need to be direct, but may occur through  
15 linker sequences. The antibodies may be specific for antigens other than polypeptides (or portion thereof, preferably at least 10, 20, 30, 40, 50, 60, 70, 80, 90 or 100 amino acids of the polypeptide) of the present invention. For example, antibodies may be used to target the polypeptides of the present invention to particular cell types, either in vitro or in vivo, by fusing or conjugating the polypeptides of the present invention  
20 to antibodies specific for particular cell surface receptors. Antibodies fused or conjugated to the polypeptides of the present invention may also be used in in vitro immunoassays and purification methods using methods known in the art. See e.g., Harbor et al., supra, and PCT publication WO 93/21232; EP 439,095; Naramura et al., Immunol. Lett. 39:91-99 (1994); U.S. Patent 5,474,981; Gillies et al., PNAS  
25 89:1428-1432 (1992); Fell et al., J. Immunol. 146:2446-2452(1991), which are incorporated by reference in their entireties.

The present invention further includes compositions comprising the polypeptides of the present invention fused or conjugated to antibody domains other than the variable regions. For example, the polypeptides of the present invention may  
30 be fused or conjugated to an antibody Fc region, or portion thereof. The antibody



portion fused to a polypeptide of the present invention may comprise the constant region, hinge region, CH1 domain, CH2 domain, and CH3 domain or any combination of whole domains or portions thereof. The polypeptides may also be fused or conjugated to the above antibody portions to form multimers. For example,

5 Fc portions fused to the polypeptides of the present invention can form dimers through disulfide bonding between the Fc portions. Higher multimeric forms can be made by fusing the polypeptides to portions of IgA and IgM. Methods for fusing or conjugating the polypeptides of the present invention to antibody portions are known in the art. See, e.g., U.S. Patent Nos. 5,336,603; 5,622,929; 5,359,046; 5,349,053;  
10 5,447,851; 5,112,946; EP 307,434; EP 367,166; PCT publications WO 96/04388; WO 91/06570; Ashkenazi et al., Proc. Natl. Acad. Sci. USA 88:10535-10539 (1991); Zheng et al., J. Immunol. 154:5590-5600 (1995); and Vil et al., Proc. Natl. Acad. Sci. USA 89:11337-11341 (1992) (said references incorporated by reference in their entireties).

15 As discussed, supra, the polypeptides corresponding to a polypeptide, polypeptide fragment, or a variant of SEQ ID NO:Y may be fused or conjugated to the above antibody portions to increase the in vivo half life of the polypeptides or for use in immunoassays using methods known in the art. Further, the polypeptides corresponding to SEQ ID NO:Y may be fused or conjugated to the above antibody  
20 portions to facilitate purification. One reported example describes chimeric proteins consisting of the first two domains of the human CD4-polypeptide and various domains of the constant regions of the heavy or light chains of mammalian immunoglobulins. (EP 394,827; Traunecker et al., Nature 331:84-86 (1988). The polypeptides of the present invention fused or conjugated to an antibody having  
25 disulfide-linked dimeric structures (due to the IgG) may also be more efficient in binding and neutralizing other molecules, than the monomeric secreted protein or protein fragment alone. (Fountoulakis et al., J. Biochem. 270:3958-3964 (1995)). In many cases, the Fc part in a fusion protein is beneficial in therapy and diagnosis, and thus can result in, for example, improved pharmacokinetic properties. (EP A  
30 232,262). Alternatively, deleting the Fc part after the fusion protein has been

expressed, detected, and purified, would be desired. For example, the Fc portion may hinder therapy and diagnosis if the fusion protein is used as an antigen for immunizations. In drug discovery, for example, human proteins, such as hIL-5, have been fused with Fc portions for the purpose of high-throughput screening assays to  
5 identify antagonists of hIL-5. (See, Bennett et al., J. Molecular Recognition 8:52-58 (1995); Johanson et al., J. Biol. Chem. 270:9459-9471 (1995).

Moreover, the antibodies or fragments thereof of the present invention can be fused to marker sequences, such as a peptide to facilitate purification. In preferred embodiments, the marker amino acid sequence is a hexa-histidine peptide, such as the  
10 tag provided in a pQE vector (QIAGEN, Inc., 9259 Eton Avenue, Chatsworth, CA, 91311), among others, many of which are commercially available. As described in Gentz et al., Proc. Natl. Acad. Sci. USA 86:821-824 (1989), for instance, hexa-histidine provides for convenient purification of the fusion protein. Other peptide tags useful for purification include, but are not limited to, the "HA" tag, which  
15 corresponds to an epitope derived from the influenza hemagglutinin protein (Wilson et al., Cell 37:767 (1984)) and the "flag" tag.

The present invention further encompasses antibodies or fragments thereof conjugated to a diagnostic or therapeutic agent. The antibodies can be used diagnostically to, for example, monitor the development or progression of a tumor as  
20 part of a clinical testing procedure to, e.g., determine the efficacy of a given treatment regimen. Detection can be facilitated by coupling the antibody to a detectable substance. Examples of detectable substances include various enzymes, prosthetic groups, fluorescent materials, luminescent materials, bioluminescent materials, radioactive materials, positron emitting metals using various positron  
25 emission tomographies, and nonradioactive paramagnetic metal ions. The detectable substance may be coupled or conjugated either directly to the antibody (or fragment thereof) or indirectly, through an intermediate (such as, for example, a linker known in the art) using techniques known in the art. See, for example, U.S. Patent No. 4,741,900 for metal ions which can be conjugated to antibodies for use as diagnostics  
30 according to the present invention. Examples of suitable enzymes include horseradish

peroxidase, alkaline phosphatase, beta-galactosidase, or acetylcholinesterase; examples of suitable prosthetic group complexes include streptavidin/biotin and avidin/biotin; examples of suitable fluorescent materials include umbelliferone, fluorescein, fluorescein isothiocyanate, rhodamine, dichlorotriazinylamine  
5 fluorescein, dansyl chloride or phycoerythrin; an example of a luminescent material includes luminol; examples of bioluminescent materials include luciferase, luciferin, and aequorin; and examples of suitable radioactive material include  $^{125}\text{I}$ ,  $^{131}\text{I}$ ,  $^{111}\text{In}$  or  $^{99}\text{Tc}$ .

Further, an antibody or fragment thereof may be conjugated to a therapeutic  
10 moiety such as a cytotoxin, e.g., a cytostatic or cytocidal agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example,  $^{213}\text{Bi}$ . A cytotoxin or cytotoxic agent includes any agent that is detrimental to cells. Examples include paclitaxol, cytochalasin B, gramicidin D, ethidium bromide, emetine, mitomycin, etoposide, tenoposide, vincristine, vinblastine, colchicin, doxorubicin, daunorubicin,  
15 dihydroxy anthracin dione, mitoxantrone, mithramycin, actinomycin D, 1-dehydrotestosterone, glucocorticoids, procaine, tetracaine, lidocaine, propranolol, and puromycin and analogs or homologs thereof. Therapeutic agents include, but are not limited to, antimetabolites (e.g., methotrexate, 6-mercaptopurine, 6-thioguanine, cytarabine, 5-fluorouracil decarbazine), alkylating agents (e.g., mechlorethamine,  
20 thioepa chlorambucil, melphalan, carmustine (BSNU) and lomustine (CCNU), cyclophosphamide, busulfan, dibromomannitol, streptozotocin, mitomycin C, and cis-dichlorodiamine platinum (II) (DDP) cisplatin), anthracyclines (e.g., daunorubicin (formerly daunomycin) and doxorubicin), antibiotics (e.g., dactinomycin (formerly actinomycin), bleomycin, mithramycin, and anthramycin (AMC)), and anti-mitotic  
25 agents (e.g., vincristine and vinblastine).

The conjugates of the invention can be used for modifying a given biological response. the therapeutic agent or drug moiety is not to be construed as limited to classical chemical therapeutic agents. For example, the drug moiety may be a protein or polypeptide possessing a desired biological activity. Such proteins may include,  
30 for example, a toxin such as abrin, ricin A, pseudomonas exotoxin, or diphtheria

toxin; a protein such as tumor necrosis factor,  $\alpha$ -interferon,  $\beta$ -interferon, nerve growth factor, platelet derived growth factor, tissue plasminogen activator, an apoptotic agent, e.g., TNF- $\alpha$ , TNF- $\beta$ , AIM I (See, International Publication No. WO 97/33899), AIM II (See, International Publication No. WO 97/34911), Fas  
5 Ligand (Takahashi *et al.*, *Int. Immunol.*, 6:1567-1574 (1994)), VEGF (See, International Publication No. WO 99/23105), a thrombotic agent or an anti-angiogenic agent, e.g., angiostatin or endostatin; or, biological response modifiers such as, for example, lymphokines, interleukin-1 ("IL-1"), interleukin-2 ("IL-2"), interleukin-6 ("IL-6"), granulocyte macrophage colony stimulating factor ("GM-  
10 CSF"), granulocyte colony stimulating factor ("G-CSF"), or other growth factors.

Antibodies may also be attached to solid supports, which are particularly useful for immunoassays or purification of the target antigen. Such solid supports include, but are not limited to, glass, cellulose, polyacrylamide, nylon, polystyrene, polyvinyl chloride or polypropylene.

15 Techniques for conjugating such therapeutic moiety to antibodies are well known, see, e.g., Arnon *et al.*, "Monoclonal Antibodies For Immunotargeting Of Drugs In Cancer Therapy", in *Monoclonal Antibodies And Cancer Therapy*, Reisfeld *et al.* (eds.), pp. 243-56 (Alan R. Liss, Inc. 1985); Hellstrom *et al.*, "Antibodies For Drug Delivery", in *Controlled Drug Delivery* (2nd Ed.), Robinson *et al.* (eds.), pp.  
20 623-53 (Marcel Dekker, Inc. 1987); Thorpe, "Antibody Carriers Of Cytotoxic Agents In Cancer Therapy: A Review", in *Monoclonal Antibodies '84: Biological And Clinical Applications*, Pinchera *et al.* (eds.), pp. 475-506 (1985); "Analysis, Results, And Future Prospective Of The Therapeutic Use Of Radiolabeled Antibody In Cancer Therapy", in *Monoclonal Antibodies For Cancer Detection And Therapy*,  
25 Baldwin *et al.* (eds.), pp. 303-16 (Academic Press 1985), and Thorpe *et al.*, "The Preparation And Cytotoxic Properties Of Antibody-Toxin Conjugates", *Immunol. Rev.* 62:119-58 (1982).

Alternatively, an antibody can be conjugated to a second antibody to form an antibody heteroconjugate as described by Segal in U.S. Patent No. 4,676,980, which  
30 is incorporated herein by reference in its entirety.

An antibody, with or without a therapeutic moiety conjugated to it, administered alone or in combination with cytotoxic factor(s) and/or cytokine(s) can be used as a therapeutic.

## 5 ***Immunophenotyping***

The antibodies of the invention may be utilized for immunophenotyping of cell lines and biological samples. The translation product of the gene of the present invention may be useful as a cell specific marker, or more specifically as a cellular marker that is differentially expressed at various stages of differentiation and/or maturation of particular cell types. Monoclonal antibodies directed against a specific epitope, or combination of epitopes, will allow for the screening of cellular populations expressing the marker. Various techniques can be utilized using monoclonal antibodies to screen for cellular populations expressing the marker(s), and include magnetic separation using antibody-coated magnetic beads, "panning" with antibody attached to a solid matrix (i.e., plate), and flow cytometry (See, e.g., U.S. Patent 5,985,660; and Morrison *et al.*, *Cell*, 96:737-49 (1999)).

These techniques allow for the screening of particular populations of cells, such as might be found with hematological malignancies (i.e. minimal residual disease (MRD) in acute leukemic patients) and "non-self" cells in transplantations to prevent Graft-versus-Host Disease (GVHD). Alternatively, these techniques allow for the screening of hematopoietic stem and progenitor cells capable of undergoing proliferation and/or differentiation, as might be found in human umbilical cord blood.

## ***Assays For Antibody Binding***

The antibodies of the invention may be assayed for immunospecific binding by any method known in the art. The immunoassays which can be used include but are not limited to competitive and non-competitive assay systems using techniques such as western blots, radioimmunoassays, ELISA (enzyme linked immunosorbent assay), "sandwich" immunoassays, immunoprecipitation assays, precipitin reactions, gel diffusion precipitin reactions, immunodiffusion assays, agglutination assays,

complement-fixation assays, immunoradiometric assays, fluorescent immunoassays, protein A immunoassays; to name but a few. Such assays are routine and well known in the art (see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York, which is incorporated by  
5 reference herein in its entirety). Exemplary immunoassays are described briefly below (but are not intended by way of limitation).

Immunoprecipitation protocols generally comprise lysing a population of cells in a lysis buffer such as RIPA buffer (1% NP-40 or Triton X- 100, 1% sodium deoxycholate, 0.1% SDS, 0.15 M NaCl, 0.01 M sodium phosphate at pH 7.2, 1%  
10 Trasylol) supplemented with protein phosphatase and/or protease inhibitors (e.g., EDTA, PMSF, aprotinin, sodium vanadate), adding the antibody of interest to the cell lysate, incubating for a period of time (e.g., 1-4 hours) at 4° C, adding protein A and/or protein G sepharose beads to the cell lysate, incubating for about an hour or more at 4° C, washing the beads in lysis buffer and resuspending the beads in  
15 SDS/sample buffer. The ability of the antibody of interest to immunoprecipitate a particular antigen can be assessed by, e.g., western blot analysis. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the binding of the antibody to an antigen and decrease the background (e.g., pre-clearing the cell lysate with sepharose beads). For further discussion regarding  
20 immunoprecipitation protocols see, e.g., Ausubel et al. eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 10.16.1.

Western blot analysis generally comprises preparing protein samples, electrophoresis of the protein samples in a polyacrylamide gel (e.g., 8%- 20% SDS-PAGE depending on the molecular weight of the antigen), transferring the protein  
25 sample from the polyacrylamide gel to a membrane such as nitrocellulose, PVDF or nylon, blocking the membrane in blocking solution (e.g., PBS with 3% BSA or non-fat milk), washing the membrane in washing buffer (e.g., PBS-Tween 20), blocking the membrane with primary antibody (the antibody of interest) diluted in blocking buffer, washing the membrane in washing buffer, blocking the membrane with a  
30 secondary antibody (which recognizes the primary antibody, e.g., an anti-human

antibody) conjugated to an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) or radioactive molecule (e.g.,  $^{32}\text{P}$  or  $^{125}\text{I}$ ) diluted in blocking buffer, washing the membrane in wash buffer, and detecting the presence of the antigen. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected and to reduce the background noise. For further discussion regarding western blot protocols see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 10.8.1.

ELISAs comprise preparing antigen, coating the well of a 96 well microtiter plate with the antigen, adding the antibody of interest conjugated to a detectable compound such as an enzymatic substrate (e.g., horseradish peroxidase or alkaline phosphatase) to the well and incubating for a period of time, and detecting the presence of the antigen. In ELISAs the antibody of interest does not have to be conjugated to a detectable compound; instead, a second antibody (which recognizes the antibody of interest) conjugated to a detectable compound may be added to the well. Further, instead of coating the well with the antigen, the antibody may be coated to the well. In this case, a second antibody conjugated to a detectable compound may be added following the addition of the antigen of interest to the coated well. One of skill in the art would be knowledgeable as to the parameters that can be modified to increase the signal detected as well as other variations of ELISAs known in the art. For further discussion regarding ELISAs see, e.g., Ausubel et al, eds, 1994, Current Protocols in Molecular Biology, Vol. 1, John Wiley & Sons, Inc., New York at 11.2.1.

The binding affinity of an antibody to an antigen and the off-rate of an antibody-antigen interaction can be determined by competitive binding assays. One example of a competitive binding assay is a radioimmunoassay comprising the incubation of labeled antigen (e.g.,  $^3\text{H}$  or  $^{125}\text{I}$ ) with the antibody of interest in the presence of increasing amounts of unlabeled antigen, and the detection of the antibody bound to the labeled antigen. The affinity of the antibody of interest for a particular antigen and the binding off-rates can be determined from the data by

scatchard plot analysis. Competition with a second antibody can also be determined using radioimmunoassays. In this case, the antigen is incubated with antibody of interest conjugated to a labeled compound (e.g.,  $^3\text{H}$  or  $^{125}\text{I}$ ) in the presence of increasing amounts of an unlabeled second antibody.

5

### *Therapeutic Uses*

The present invention is further directed to antibody-based therapies which involve administering antibodies of the invention to an animal, preferably a mammal, and most preferably a human, patient for treating one or more of the disclosed  
10 diseases, disorders, or conditions. Therapeutic compounds of the invention include, but are not limited to, antibodies of the invention (including fragments, analogs and derivatives thereof as described herein) and nucleic acids encoding antibodies of the invention (including fragments, analogs and derivatives thereof and anti-idiotypic antibodies as described herein). The antibodies of the invention can be used to treat,  
15 inhibit or prevent diseases, disorders or conditions associated with aberrant expression and/or activity of a polypeptide of the invention, including, but not limited to, any one or more of the diseases, disorders, or conditions described herein. The treatment and/or prevention of diseases, disorders, or conditions associated with aberrant expression and/or activity of a polypeptide of the invention includes, but is  
20 not limited to, alleviating symptoms associated with those diseases, disorders or conditions. Antibodies of the invention may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the  
25 present invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of the present invention for diagnostic, monitoring or therapeutic purposes  
30 without undue experimentation.



The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors (such as, e.g., IL-2, IL-3 and IL-7), for example, which serve to increase the number or activity of effector cells which interact with the antibodies.

The antibodies of the invention may be administered alone or in combination with other types of treatments (e.g., radiation therapy, chemotherapy, hormonal therapy, immunotherapy and anti-tumor agents). Generally, administration of products of a species origin or species reactivity (in the case of antibodies) that is the same species as that of the patient is preferred. Thus, in a preferred embodiment, human antibodies, fragments derivatives, analogs, or nucleic acids, are administered to a human patient for therapy or prophylaxis.

It is preferred to use high affinity and/or potent in vivo inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragments thereof, of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides of the invention, including fragments thereof. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-2}$  M,  $10^{-2}$  M,  $5 \times 10^{-3}$  M,  $10^{-3}$  M,  $5 \times 10^{-4}$  M,  $10^{-4}$  M,  $5 \times 10^{-5}$  M,  $10^{-5}$  M,  $5 \times 10^{-6}$  M,  $10^{-6}$  M,  $5 \times 10^{-7}$  M,  $10^{-7}$  M,  $5 \times 10^{-8}$  M,  $10^{-8}$  M,  $5 \times 10^{-9}$  M,  $10^{-9}$  M,  $5 \times 10^{-10}$  M,  $10^{-10}$  M,  $5 \times 10^{-11}$  M,  $10^{-11}$  M,  $5 \times 10^{-12}$  M,  $10^{-12}$  M,  $5 \times 10^{-13}$  M,  $10^{-13}$  M,  $5 \times 10^{-14}$  M,  $10^{-14}$  M,  $5 \times 10^{-15}$  M, and  $10^{-15}$  M.

### ***Gene Therapy***

In a specific embodiment, nucleic acids comprising sequences encoding antibodies or functional derivatives thereof, are administered to treat, inhibit or prevent a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention, by way of gene therapy. Gene therapy refers to therapy performed by the administration to a subject of an expressed or expressible nucleic

acid. In this embodiment of the invention, the nucleic acids produce their encoded protein that mediates a therapeutic effect.

Any of the methods for gene therapy available in the art can be used according to the present invention. Exemplary methods are described below.

5 For general reviews of the methods of gene therapy, see Goldspiel et al., Clinical Pharmacy 12:488-505 (1993); Wu and Wu, Biotherapy 3:87-95 (1991); Tolstoshev, Ann. Rev. Pharmacol. Toxicol. 32:573-596 (1993); Mulligan, Science 260:926-932 (1993); and Morgan and Anderson, Ann. Rev. Biochem. 62:191-217 (1993); May, TIBTECH 11(5):155-215 (1993). Methods commonly known in the art  
10 of recombinant DNA technology which can be used are described in Ausubel et al. (eds.), Current Protocols in Molecular Biology, John Wiley & Sons, NY (1993); and Kriegler, Gene Transfer and Expression, A Laboratory Manual, Stockton Press, NY (1990).

In a preferred aspect, the compound comprises nucleic acid sequences  
15 encoding an antibody, said nucleic acid sequences being part of expression vectors that express the antibody or fragments or chimeric proteins or heavy or light chains thereof in a suitable host. In particular, such nucleic acid sequences have promoters operably linked to the antibody coding region, said promoter being inducible or constitutive, and, optionally, tissue-specific. In another particular embodiment,  
20 nucleic acid molecules are used in which the antibody coding sequences and any other desired sequences are flanked by regions that promote homologous recombination at a desired site in the genome, thus providing for intrachromosomal expression of the antibody encoding nucleic acids (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989). In  
25 specific embodiments, the expressed antibody molecule is a single chain antibody; alternatively, the nucleic acid sequences include sequences encoding both the heavy and light chains, or fragments thereof, of the antibody.

Delivery of the nucleic acids into a patient may be either direct, in which case the patient is directly exposed to the nucleic acid or nucleic acid- carrying vectors, or  
30 indirect, in which case, cells are first transformed with the nucleic acids in vitro, then

transplanted into the patient. These two approaches are known, respectively, as in vivo or ex vivo gene therapy.

In a specific embodiment, the nucleic acid sequences are directly administered in vivo, where it is expressed to produce the encoded product. This can be accomplished by any of numerous methods known in the art, e.g., by constructing them as part of an appropriate nucleic acid expression vector and administering it so that they become intracellular, e.g., by infection using defective or attenuated retrovirals or other viral vectors (see U.S. Patent No. 4,980,286), or by direct injection of naked DNA, or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, encapsulation in liposomes, microparticles, or microcapsules, or by administering them in linkage to a peptide which is known to enter the nucleus, by administering it in linkage to a ligand subject to receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)) (which can be used to target cell types specifically expressing the receptors), etc. In another embodiment, nucleic acid-ligand complexes can be formed in which the ligand comprises a fusogenic viral peptide to disrupt endosomes, allowing the nucleic acid to avoid lysosomal degradation. In yet another embodiment, the nucleic acid can be targeted in vivo for cell specific uptake and expression, by targeting a specific receptor (see, e.g., PCT Publications WO 92/06180; WO 92/22635; WO92/20316; WO93/14188, WO 93/20221). Alternatively, the nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination (Koller and Smithies, Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); Zijlstra et al., Nature 342:435-438 (1989)).

In a specific embodiment, viral vectors that contains nucleic acid sequences encoding an antibody of the invention are used. For example, a retroviral vector can be used (see Miller et al., Meth. Enzymol. 217:581-599 (1993)). These retroviral vectors contain the components necessary for the correct packaging of the viral genome and integration into the host cell DNA. The nucleic acid sequences encoding the antibody to be used in gene therapy are cloned into one or more vectors, which

facilitates delivery of the gene into a patient. More detail about retroviral vectors can be found in Boesen et al., *Biotherapy* 6:291-302 (1994), which describes the use of a retroviral vector to deliver the *mdr1* gene to hematopoietic stem cells in order to make the stem cells more resistant to chemotherapy. Other references illustrating the use of retroviral vectors in gene therapy are: Clowes et al., *J. Clin. Invest.* 93:644-651 (1994); Kiem et al., *Blood* 83:1467-1473 (1994); Salmons and Gunzberg, *Human Gene Therapy* 4:129-141 (1993); and Grossman and Wilson, *Curr. Opin. in Genetics and Devel.* 3:110-114 (1993).

Adenoviruses are other viral vectors that can be used in gene therapy. Adenoviruses are especially attractive vehicles for delivering genes to respiratory epithelia. Adenoviruses naturally infect respiratory epithelia where they cause a mild disease. Other targets for adenovirus-based delivery systems are liver, the central nervous system, endothelial cells, and muscle. Adenoviruses have the advantage of being capable of infecting non-dividing cells. Kozarsky and Wilson, *Current Opinion in Genetics and Development* 3:499-503 (1993) present a review of adenovirus-based gene therapy. Bout et al., *Human Gene Therapy* 5:3-10 (1994) demonstrated the use of adenovirus vectors to transfer genes to the respiratory epithelia of rhesus monkeys. Other instances of the use of adenoviruses in gene therapy can be found in Rosenfeld et al., *Science* 252:431-434 (1991); Rosenfeld et al., *Cell* 68:143-155 (1992); Mastrangeli et al., *J. Clin. Invest.* 91:225-234 (1993); PCT Publication WO94/12649; and Wang, et al., *Gene Therapy* 2:775-783 (1995). In a preferred embodiment, adenovirus vectors are used.

Adeno-associated virus (AAV) has also been proposed for use in gene therapy (Walsh et al., *Proc. Soc. Exp. Biol. Med.* 204:289-300 (1993); U.S. Patent No. 5,436,146).

Another approach to gene therapy involves transferring a gene to cells in tissue culture by such methods as electroporation, lipofection, calcium phosphate mediated transfection, or viral infection. Usually, the method of transfer includes the transfer of a selectable marker to the cells. The cells are then placed under selection

to isolate those cells that have taken up and are expressing the transferred gene. Those cells are then delivered to a patient.

In this embodiment, the nucleic acid is introduced into a cell prior to administration in vivo of the resulting recombinant cell. Such introduction can be carried out by any method known in the art, including but not limited to transfection, electroporation, microinjection, infection with a viral or bacteriophage vector containing the nucleic acid sequences, cell fusion, chromosome-mediated gene transfer, microcell-mediated gene transfer, spheroplast fusion, etc. Numerous techniques are known in the art for the introduction of foreign genes into cells (see, e.g., Loeffler and Behr, Meth. Enzymol. 217:599-618 (1993); Cohen et al., Meth. Enzymol. 217:618-644 (1993); Cline, Pharmac. Ther. 29:69-92m (1985) and may be used in accordance with the present invention, provided that the necessary developmental and physiological functions of the recipient cells are not disrupted. The technique should provide for the stable transfer of the nucleic acid to the cell, so that the nucleic acid is expressible by the cell and preferably heritable and expressible by its cell progeny.

The resulting recombinant cells can be delivered to a patient by various methods known in the art. Recombinant blood cells (e.g., hematopoietic stem or progenitor cells) are preferably administered intravenously. The amount of cells envisioned for use depends on the desired effect, patient state, etc., and can be determined by one skilled in the art.

Cells into which a nucleic acid can be introduced for purposes of gene therapy encompass any desired, available cell type, and include but are not limited to epithelial cells, endothelial cells, keratinocytes, fibroblasts, muscle cells, hepatocytes; blood cells such as Tlymphocytes, Blymphocytes, monocytes, macrophages, neutrophils, eosinophils, megakaryocytes, granulocytes; various stem or progenitor cells, in particular hematopoietic stem or progenitor cells, e.g., as obtained from bone marrow, umbilical cord blood, peripheral blood, fetal liver, etc.

In a preferred embodiment, the cell used for gene therapy is autologous to the patient.

In an embodiment in which recombinant cells are used in gene therapy, nucleic acid sequences encoding an antibody are introduced into the cells such that they are expressible by the cells or their progeny, and the recombinant cells are then administered in vivo for therapeutic effect. In a specific embodiment, stem or progenitor cells are used. Any stem and/or progenitor cells which can be isolated and maintained in vitro can potentially be used in accordance with this embodiment of the present invention (see e.g. PCT Publication WO 94/08598; Stemple and Anderson, Cell 71:973-985 (1992); Rheinwald, Meth. Cell Bio. 21A:229 (1980); and Pittelkow and Scott, Mayo Clinic Proc. 61:771 (1986)).

In a specific embodiment, the nucleic acid to be introduced for purposes of gene therapy comprises an inducible promoter operably linked to the coding region, such that expression of the nucleic acid is controllable by controlling the presence or absence of the appropriate inducer of transcription. **Demonstration of Therapeutic or Prophylactic Activity**

The compounds or pharmaceutical compositions of the invention are preferably tested in vitro, and then in vivo for the desired therapeutic or prophylactic activity, prior to use in humans. For example, in vitro assays to demonstrate the therapeutic or prophylactic utility of a compound or pharmaceutical composition include the effect of a compound on a cell line or a patient tissue sample. The effect of the compound or composition on the cell line and/or tissue sample can be determined utilizing techniques known to those of skill in the art including, but not limited to, rosette formation assays and cell lysis assays. In accordance with the invention, in vitro assays which can be used to determine whether administration of a specific compound is indicated, include in vitro cell culture assays in which a patient tissue sample is grown in culture, and exposed to or otherwise administered a compound, and the effect of such compound upon the tissue sample is observed.

#### ***Therapeutic/Prophylactic Administration and Composition***

The invention provides methods of treatment, inhibition and prophylaxis by administration to a subject of an effective amount of a compound or pharmaceutical

composition of the invention, preferably a polypeptide or antibody of the invention. In a preferred aspect, the compound is substantially purified (e.g., substantially free from substances that limit its effect or produce undesired side-effects). The subject is preferably an animal, including but not limited to animals such as cows, pigs, horses, chickens, cats, dogs, etc., and is preferably a mammal, and most preferably human.

Formulations and methods of administration that can be employed when the compound comprises a nucleic acid or an immunoglobulin are described above; additional appropriate formulations and routes of administration can be selected from among those described herein below.

Various delivery systems are known and can be used to administer a compound of the invention, e.g., encapsulation in liposomes, microparticles, microcapsules, recombinant cells capable of expressing the compound, receptor-mediated endocytosis (see, e.g., Wu and Wu, J. Biol. Chem. 262:4429-4432 (1987)), construction of a nucleic acid as part of a retroviral or other vector, etc. Methods of introduction include but are not limited to intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, and oral routes. The compounds or compositions may be administered by any convenient route, for example by infusion or bolus injection, by absorption through epithelial or mucocutaneous linings (e.g., oral mucosa, rectal and intestinal mucosa, etc.) and may be administered together with other biologically active agents. Administration can be systemic or local. In addition, it may be desirable to introduce the pharmaceutical compounds or compositions of the invention into the central nervous system by any suitable route, including intraventricular and intrathecal injection; intraventricular injection may be facilitated by an intraventricular catheter, for example, attached to a reservoir, such as an Ommaya reservoir. Pulmonary administration can also be employed, e.g., by use of an inhaler or nebulizer, and formulation with an aerosolizing agent.

In a specific embodiment, it may be desirable to administer the pharmaceutical compounds or compositions of the invention locally to the area in need of treatment; this may be achieved by, for example, and not by way of limitation, local infusion during surgery, topical application, e.g., in conjunction with a wound dressing after

surgery, by injection, by means of a catheter, by means of a suppository, or by means of an implant, said implant being of a porous, non-porous, or gelatinous material, including membranes, such as sialastic membranes, or fibers. Preferably, when administering a protein, including an antibody, of the invention, care must be taken to use materials to which the protein does not absorb.

In another embodiment, the compound or composition can be delivered in a vesicle, in particular a liposome (see Langer, *Science* 249:1527-1533 (1990); Treat et al., in *Liposomes in the Therapy of Infectious Disease and Cancer*, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 353- 365 (1989); Lopez-Berestein, *ibid.*, pp. 317-327; see generally *ibid.*)

In yet another embodiment, the compound or composition can be delivered in a controlled release system. In one embodiment, a pump may be used (see Langer, *supra*; Sefton, *CRC Crit. Ref. Biomed. Eng.* 14:201 (1987); Buchwald et al., *Surgery* 88:507 (1980); Saudek et al., *N. Engl. J. Med.* 321:574 (1989)). In another embodiment, polymeric materials can be used (see *Medical Applications of Controlled Release*, Langer and Wise (eds.), CRC Pres., Boca Raton, Florida (1974); *Controlled Drug Bioavailability, Drug Product Design and Performance*, Smolen and Ball (eds.), Wiley, New York (1984); Ranger and Peppas, J., *Macromol. Sci. Rev. Macromol. Chem.* 23:61 (1983); see also Levy et al., *Science* 228:190 (1985); During et al., *Ann. Neurol.* 25:351 (1989); Howard et al., *J. Neurosurg.* 71:105 (1989)). In yet another embodiment, a controlled release system can be placed in proximity of the therapeutic target, i.e., the brain, thus requiring only a fraction of the systemic dose (see, e.g., Goodson, in *Medical Applications of Controlled Release*, *supra*, vol. 2, pp. 115-138 (1984)).

Other controlled release systems are discussed in the review by Langer (*Science* 249:1527-1533 (1990)).

In a specific embodiment where the compound of the invention is a nucleic acid encoding a protein, the nucleic acid can be administered in vivo to promote expression of its encoded protein, by constructing it as part of an appropriate nucleic acid expression vector and administering it so that it becomes intracellular. e.g., by



use of a retroviral vector (see U.S. Patent No. 4,980,286), or by direct injection, or by use of microparticle bombardment (e.g., a gene gun; Biolistic, Dupont), or coating with lipids or cell-surface receptors or transfecting agents, or by administering it in linkage to a homeobox- like peptide which is known to enter the nucleus (see e.g.,  
5 Joliot et al., Proc. Natl. Acad. Sci. USA 88:1864-1868 (1991)), etc. Alternatively, a nucleic acid can be introduced intracellularly and incorporated within host cell DNA for expression, by homologous recombination.

The present invention also provides pharmaceutical compositions. Such compositions comprise a therapeutically effective amount of a compound, and a  
10 pharmaceutically acceptable carrier. In a specific embodiment, the term "pharmaceutically acceptable" means approved by a regulatory agency of the Federal or a state government or listed in the U.S. Pharmacopeia or other generally recognized pharmacopeia for use in animals, and more particularly in humans. The term "carrier" refers to a diluent, adjuvant, excipient, or vehicle with which the  
15 therapeutic is administered. Such pharmaceutical carriers can be sterile liquids, such as water and oils, including those of petroleum, animal, vegetable or synthetic origin, such as peanut oil, soybean oil, mineral oil, sesame oil and the like. Water is a preferred carrier when the pharmaceutical composition is administered intravenously. Saline solutions and aqueous dextrose and glycerol solutions can also be employed as  
20 liquid carriers, particularly for injectable solutions. Suitable pharmaceutical excipients include starch, glucose, lactose, sucrose, gelatin, malt, rice, flour, chalk, silica gel, sodium stearate, glycerol monostearate, talc, sodium chloride, dried skim milk, glycerol, propylene, glycol, water, ethanol and the like. The composition, if desired, can also contain minor amounts of wetting or emulsifying agents, or pH  
25 buffering agents. These compositions can take the form of solutions, suspensions, emulsion, tablets, pills, capsules, powders, sustained-release formulations and the like. The composition can be formulated as a suppository, with traditional binders and carriers such as triglycerides. Oral formulation can include standard carriers such as pharmaceutical grades of mannitol, lactose, starch, magnesium stearate,  
30 sodium saccharine, cellulose, magnesium carbonate, etc. Examples of suitable

pharmaceutical carriers are described in "Remington's Pharmaceutical Sciences" by E.W. Martin. Such compositions will contain a therapeutically effective amount of the compound, preferably in purified form, together with a suitable amount of carrier so as to provide the form for proper administration to the patient. The formulation  
5 should suit the mode of administration.

In a preferred embodiment, the composition is formulated in accordance with routine procedures as a pharmaceutical composition adapted for intravenous administration to human beings. Typically, compositions for intravenous administration are solutions in sterile isotonic aqueous buffer. Where necessary, the  
10 composition may also include a solubilizing agent and a local anesthetic such as lignocaine to ease pain at the site of the injection. Generally, the ingredients are supplied either separately or mixed together in unit dosage form, for example, as a dry lyophilized powder or water free concentrate in a hermetically sealed container such as an ampoule or sachette indicating the quantity of active agent. Where the  
15 composition is to be administered by infusion, it can be dispensed with an infusion bottle containing sterile pharmaceutical grade water or saline. Where the composition is administered by injection, an ampoule of sterile water for injection or saline can be provided so that the ingredients may be mixed prior to administration.

The compounds of the invention can be formulated as neutral or salt forms.  
20 Pharmaceutically acceptable salts include those formed with anions such as those derived from hydrochloric, phosphoric, acetic, oxalic, tartaric acids, etc., and those formed with cations such as those derived from sodium, potassium, ammonium, calcium, ferric hydroxides, isopropylamine, triethylamine, 2-ethylamino ethanol, histidine, procaine, etc.

25 The amount of the compound of the invention which will be effective in the treatment, inhibition and prevention of a disease or disorder associated with aberrant expression and/or activity of a polypeptide of the invention can be determined by standard clinical techniques. In addition, in vitro assays may optionally be employed to help identify optimal dosage ranges. The precise dose to be employed in the  
30 formulation will also depend on the route of administration, and the seriousness of

the disease or disorder, and should be decided according to the judgment of the practitioner and each patient's circumstances. Effective doses may be extrapolated from dose-response curves derived from in vitro or animal model test systems.

For antibodies, the dosage administered to a patient is typically 0.1 mg/kg to 100 mg/kg of the patient's body weight. Preferably, the dosage administered to a patient is between 0.1 mg/kg and 20 mg/kg of the patient's body weight, more preferably 1 mg/kg to 10 mg/kg of the patient's body weight. Generally, human antibodies have a longer half-life within the human body than antibodies from other species due to the immune response to the foreign polypeptides. Thus, lower dosages of human antibodies and less frequent administration is often possible. Further, the dosage and frequency of administration of antibodies of the invention may be reduced by enhancing uptake and tissue penetration (e.g., into the brain) of the antibodies by modifications such as, for example, lipidation.

The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the pharmaceutical compositions of the invention. Optionally associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration.

### ***Diagnosis and Imaging***

Labeled antibodies, and derivatives and analogs thereof, which specifically bind to a polypeptide of interest can be used for diagnostic purposes to detect, diagnose, or monitor diseases, disorders, and/or conditions associated with the aberrant expression and/or activity of a polypeptide of the invention. The invention provides for the detection of aberrant expression of a polypeptide of interest, comprising (a) assaying the expression of the polypeptide of interest in cells or body fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level,

whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of aberrant expression.

The invention provides a diagnostic assay for diagnosing a disorder, comprising (a) assaying the expression of the polypeptide of interest in cells or body  
5 fluid of an individual using one or more antibodies specific to the polypeptide interest and (b) comparing the level of gene expression with a standard gene expression level, whereby an increase or decrease in the assayed polypeptide gene expression level compared to the standard expression level is indicative of a particular disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied  
10 tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

15 Antibodies of the invention can be used to assay protein levels in a biological sample using classical immunohistological methods known to those of skill in the art (e.g., see Jalkanen, et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen, et al., J. Cell Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked  
20 immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine ( $^{125}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{112}\text{In}$ ), and technetium ( $^{99}\text{Tc}$ ); luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

25 One aspect of the invention is the detection and diagnosis of a disease or disorder associated with aberrant expression of a polypeptide of interest in an animal, preferably a mammal and most preferably a human. In one embodiment, diagnosis comprises: a) administering (for example, parenterally, subcutaneously, or intraperitoneally) to a subject an effective amount of a labeled molecule which  
30 specifically binds to the polypeptide of interest: b) waiting for a time interval

following the administering for permitting the labeled molecule to preferentially concentrate at sites in the subject where the polypeptide is expressed (and for unbound labeled molecule to be cleared to background level); c) determining background level; and d) detecting the labeled molecule in the subject, such that

5 detection of labeled molecule above the background level indicates that the subject has a particular disease or disorder associated with aberrant expression of the polypeptide of interest. Background level can be determined by various methods including, comparing the amount of labeled molecule detected to a standard value previously determined for a particular system.

10 It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of <sup>99m</sup>Tc. The labeled antibody or antibody fragment will then preferentially

15 accumulate at the location of cells which contain the specific protein. In vivo tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments." (Chapter 13 in Tumor Imaging: The Radiochemical Detection of Cancer, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982).

20 Depending on several variables, including the type of label used and the mode of administration, the time interval following the administration for permitting the labeled molecule to preferentially concentrate at sites in the subject and for unbound labeled molecule to be cleared to background level is 6 to 48 hours or 6 to 24 hours or 6 to 12 hours. In another embodiment the time interval following administration is 5

25 to 20 days or 5 to 10 days.

In an embodiment, monitoring of the disease or disorder is carried out by repeating the method for diagnosing the disease or disease, for example, one month after initial diagnosis, six months after initial diagnosis, one year after initial diagnosis, etc.

Presence of the labeled molecule can be detected in the patient using methods known in the art for in vivo scanning. These methods depend upon the type of label used. Skilled artisans will be able to determine the appropriate method for detecting a particular label. Methods and devices that may be used in the diagnostic methods of the invention include, but are not limited to, computed tomography (CT), whole body scan such as position emission tomography (PET), magnetic resonance imaging (MRI), and sonography.

In a specific embodiment, the molecule is labeled with a radioisotope and is detected in the patient using a radiation responsive surgical instrument (Thurston et al., U.S. Patent No. 5,441,050). In another embodiment, the molecule is labeled with a fluorescent compound and is detected in the patient using a fluorescence responsive scanning instrument. In another embodiment, the molecule is labeled with a positron emitting metal and is detected in the patient using positron emission-tomography. In yet another embodiment, the molecule is labeled with a paramagnetic label and is detected in a patient using magnetic resonance imaging (MRI).

### ***Kits***

The present invention provides kits that can be used in the above methods. In one embodiment, a kit comprises an antibody of the invention, preferably a purified antibody, in one or more containers. In a specific embodiment, the kits of the present invention contain a substantially isolated polypeptide comprising an epitope which is specifically immunoreactive with an antibody included in the kit. Preferably, the kits of the present invention further comprise a control antibody which does not react with the polypeptide of interest. In another specific embodiment, the kits of the present invention contain a means for detecting the binding of an antibody to a polypeptide of interest (e.g., the antibody may be conjugated to a detectable substrate such as a fluorescent compound, an enzymatic substrate, a radioactive compound or a luminescent compound, or a second antibody which recognizes the first antibody may be conjugated to a detectable substrate).

In another specific embodiment of the present invention, the kit is a diagnostic kit for use in screening serum containing antibodies specific against proliferative and/or cancerous polynucleotides and polypeptides. Such a kit may include a control antibody that does not react with the polypeptide of interest. Such a kit may include a substantially isolated polypeptide antigen comprising an epitope which is specifically immunoreactive with at least one anti-polypeptide antigen antibody. Further, such a kit includes means for detecting the binding of said antibody to the antigen (e.g., the antibody may be conjugated to a fluorescent compound such as fluorescein or rhodamine which can be detected by flow cytometry). In specific embodiments, the kit may include a recombinantly produced or chemically synthesized polypeptide antigen. The polypeptide antigen of the kit may also be attached to a solid support.

In a more specific embodiment the detecting means of the above-described kit includes a solid support to which said polypeptide antigen is attached. Such a kit may also include a non-attached reporter-labeled anti-human antibody. In this embodiment, binding of the antibody to the polypeptide antigen can be detected by binding of the said reporter-labeled antibody.

In an additional embodiment, the invention includes a diagnostic kit for use in screening serum containing antigens of the polypeptide of the invention. The diagnostic kit includes a substantially isolated antibody specifically immunoreactive with polypeptide or polynucleotide antigens, and means for detecting the binding of the polynucleotide or polypeptide antigen to the antibody. In one embodiment, the antibody is attached to a solid support. In a specific embodiment, the antibody may be a monoclonal antibody. The detecting means of the kit may include a second, labeled monoclonal antibody. Alternatively, or in addition, the detecting means may include a labeled, competing antigen.

In one diagnostic configuration, test serum is reacted with a solid phase reagent having a surface-bound antigen obtained by the methods of the present invention. After binding with specific antigen antibody to the reagent and removing unbound serum components by washing, the reagent is reacted with reporter-labeled anti-human antibody to bind reporter to the reagent in proportion to the amount of

bound anti-antigen antibody on the solid support. The reagent is again washed to remove unbound labeled antibody, and the amount of reporter associated with the reagent is determined. Typically, the reporter is an enzyme which is detected by incubating the solid phase in the presence of a suitable fluorometric, luminescent or colorimetric substrate (Sigma, St. Louis, MO).

The solid surface reagent in the above assay is prepared by known techniques for attaching protein material to solid support material, such as polymeric beads, dip sticks, 96-well plate or filter material. These attachment methods generally include non-specific adsorption of the protein to the support or covalent attachment of the protein, typically through a free amine group, to a chemically reactive group on the solid support, such as an activated carboxyl, hydroxyl, or aldehyde group. Alternatively, streptavidin coated plates can be used in conjunction with biotinylated antigen(s).

Thus, the invention provides an assay system or kit for carrying out this diagnostic method. The kit generally includes a support with surface-bound recombinant antigens, and a reporter-labeled anti-human antibody for detecting surface-bound anti-antigen antibody.

#### **Uses of the Polynucleotides**

Each of the polynucleotides identified herein can be used in numerous ways as reagents. The following description should be considered exemplary and utilizes known techniques.

The prostate cancer antigen polynucleotides of the present invention are useful for chromosome identification. There exists an ongoing need to identify new chromosome markers, since few chromosome marking reagents, based on actual sequence data (repeat polymorphisms), are presently available. Each sequence is specifically targeted to and can hybridize with a particular location on an individual human chromosome, thus each polynucleotide of the present invention can routinely be used as a chromosome marker using techniques known in the art.



Briefly, sequences can be mapped to chromosomes by preparing PCR primers (preferably at least 15 bp (e.g., 15-25 bp) from the sequences shown in SEQ ID NO:X, or the complement thereto. Primers can optionally be selected using computer analysis so that primers do not span more than one predicted exon in the genomic DNA. These primers are then used for PCR screening of somatic cell hybrids containing individual human chromosomes. Only those hybrids containing the human gene corresponding to SEQ ID NO:X will yield an amplified fragment.

Similarly, somatic hybrids provide a rapid method of PCR mapping the polynucleotides to particular chromosomes. Three or more clones can be assigned per day using a single thermal cycler. Moreover, sublocalization of the polynucleotides can be achieved with panels of specific chromosome fragments. Other gene mapping strategies that can be used include in situ hybridization, prescreening with labeled flow-sorted chromosomes, preselection by hybridization to construct chromosome specific-cDNA libraries, and computer mapping techniques (See, e.g., Shuler, Trends Biotechnol 16:456-459 (1998) which is hereby incorporated by reference in its entirety).

Precise chromosomal location of the polynucleotides can also be achieved using fluorescence in situ hybridization (FISH) of a metaphase chromosomal spread. This technique uses polynucleotides as short as 500 or 600 bases; however, polynucleotides 2,000-4,000 bp are preferred. For a review of this technique, see Verma et al., "Human Chromosomes: a Manual of Basic Techniques," Pergamon Press, New York (1988).

For chromosome mapping, the polynucleotides can be used individually (to mark a single chromosome or a single site on that chromosome) or in panels (for marking multiple sites and/or multiple chromosomes).

Thus, the present invention also provides a method for chromosomal localization which involves (a) preparing PCR primers from the polynucleotide sequences in Table 3 and SEQ ID NO:X and (b) screening somatic cell hybrids containing individual chromosomes.

The polynucleotides of the present invention would likewise be useful for radiation hybrid mapping, HAPPY mapping, and long range restriction mapping. For a review of these techniques and others known in the art, see. e.g. Dear, "Genome Mapping: A Practical Approach," IRL Press at Oxford University Press, London  
5 (1997); Aydin, J. Mol. Med. 77:691-694 (1999); Hacia et al., Mol. Psychiatry 3:483-492 (1998); Herrick et al., Chromosome Res. 7:409-423 (1999); Hamilton et al., Methods Cell Biol. 62:265-280 (2000); and/or Ott, J. Hered. 90:68-70 (1999) each of which is hereby incorporated by reference in its entirety.

Once a polynucleotide has been mapped to a precise chromosomal location,  
10 the physical position of the polynucleotide can be used in linkage analysis. Linkage analysis establishes coinheritance between a chromosomal location and presentation of a particular disease. (Disease mapping data are found, for example, in V. McKusick, Mendelian Inheritance in Man (available on line through Johns Hopkins University Welch Medical Library).) Assuming 1 megabase mapping resolution and  
15 one gene per 20 kb, a cDNA precisely localized to a chromosomal region associated with the disease could be one of 50-500 potential causative genes.

Thus, once coinheritance is established, differences in a polynucleotide of the invention and the corresponding gene between affected and unaffected individuals can be examined. First, visible structural alterations in the chromosomes, such as  
20 deletions or translocations, are examined in chromosome spreads or by PCR. If no structural alterations exist, the presence of point mutations are ascertained. Mutations observed in some or all affected individuals, but not in normal individuals, indicates that the mutation may cause the disease. However, complete sequencing of the polypeptide and the corresponding gene from several normal individuals is required  
25 to distinguish the mutation from a polymorphism. If a new polymorphism is identified, this polymorphic polypeptide can be used for further linkage analysis.

Furthermore, increased or decreased expression of the gene in affected individuals as compared to unaffected individuals can be assessed using the polynucleotides of the invention. Any of these alterations (altered expression,

chromosomal rearrangement, or mutation) can be used as a diagnostic or prognostic marker.

Thus, the invention provides a method of detecting increased or decreased expression levels of the prostate cancer polynucleotides in affected individuals as compared to unaffected individuals using polynucleotides of the present invention and techniques known in the art, including but not limited to the method described in Example 11. Any of these alterations (altered expression, chromosomal rearrangement, or mutation) can be used as a diagnostic or prognostic marker.

Thus, the invention also provides a diagnostic method useful during diagnosis of a prostate related disorder, including prostate cancer, involving measuring the expression level of prostate cancer polynucleotides in prostate tissue or other cells or body fluid from an individual and comparing the measured gene expression level with a standard prostate cancer polynucleotide expression level, whereby an increase or decrease in the gene expression level compared to the standard is indicative of a prostate related disorder.

In still another embodiment, the invention includes a kit for analyzing samples for the presence of proliferative and/or cancerous polynucleotides derived from a test subject. In a general embodiment, the kit includes at least one polynucleotide probe containing a nucleotide sequence that will specifically hybridize with a polynucleotide of the invention and a suitable container. In a specific embodiment, the kit includes two polynucleotide probes defining an internal region of the polynucleotide of the invention, where each probe has one strand containing a 31'-mer-end internal to the region. In a further embodiment, the probes may be useful as primers for polymerase chain reaction amplification.

Where a diagnosis of a prostate related disorder, including, for example, diagnosis of a tumor, has already been made according to conventional methods, the present invention is useful as a prognostic indicator, whereby patients exhibiting enhanced or depressed prostate cancer polynucleotide expression will experience a worse clinical outcome relative to patients expressing the gene at a level nearer the standard level.

By "measuring the expression level of prostate cancer polynucleotides" is intended qualitatively or quantitatively measuring or estimating the level of the prostate cancer polypeptide or the level of the mRNA encoding the prostate cancer polypeptide in a first biological sample either directly (e.g., by determining or estimating absolute protein level or mRNA level) or relatively (e.g., by comparing to the prostate cancer polypeptide level or mRNA level in a second biological sample). Preferably, the prostate cancer polypeptide level or mRNA level in the first biological sample is measured or estimated and compared to a standard prostate cancer polypeptide level or mRNA level, the standard being taken from a second biological sample obtained from an individual not having the prostate related disorder or being determined by averaging levels from a population of individuals not having a prostate related disorder. As will be appreciated in the art, once a standard prostate cancer polypeptide level or mRNA level is known, it can be used repeatedly as a standard for comparison.

By "biological sample" is intended any biological sample obtained from an individual, body fluid, cell line, tissue culture, or other source which contains prostate cancer polypeptide or the corresponding mRNA. As indicated, biological samples include body fluids (such as semen, lymph, sera, plasma, urine, synovial fluid and spinal fluid) which contain the prostate cancer polypeptide, prostate tissue, and other tissue sources found to express the prostate cancer polypeptide. Methods for obtaining tissue biopsies and body fluids from mammals are well known in the art. Where the biological sample is to include mRNA, a tissue biopsy is the preferred source.

The method(s) provided above may preferably be applied in a diagnostic method and/or kits in which polynucleotides and/or polypeptides of the invention are attached to a solid support. In one exemplary method, the support may be a "gene chip" or a "biological chip" as described in US Patents 5,837,832, 5,874,219, and 5,856,174. Further, such a gene chip with prostate cancer polynucleotides attached may be used to identify polymorphisms between the prostate cancer polynucleotide sequences, with polynucleotides isolated from a test subject. The knowledge of such

polymorphisms (i.e. their location, as well as, their existence) would be beneficial in identifying disease loci for many disorders, such as for example, in neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions, though most preferably in prostate related proliferative, and/or cancerous diseases and conditions. Such a method is described in US Patents 5,858,659 and 5,856,104. The US Patents referenced supra are hereby incorporated by reference in their entirety herein.

The present invention encompasses prostate cancer polynucleotides that are chemically synthesized, or reproduced as peptide nucleic acids (PNA), or according to other methods known in the art. The use of PNAs would serve as the preferred form if the polynucleotides of the invention are incorporated onto a solid support, or gene chip. For the purposes of the present invention, a peptide nucleic acid (PNA) is a polyamide type of DNA analog and the monomeric units for adenine, guanine, thymine and cytosine are available commercially (Perceptive Biosystems). Certain components of DNA, such as phosphorus, phosphorus oxides, or deoxyribose derivatives, are not present in PNAs. As disclosed by P. E. Nielsen, M. Egholm, R. H. Berg and O. Buchardt, Science 254, 1497 (1991); and M. Egholm, O. Buchardt, L. Christensen, C. Behrens, S. M. Freier, D. A. Driver, R. H. Berg, S. K. Kim, B. Norden, and P. E. Nielsen, Nature 365, 666 (1993), PNAs bind specifically and tightly to complementary DNA strands and are not degraded by nucleases. In fact, PNA binds more strongly to DNA than DNA itself does. This is probably because there is no electrostatic repulsion between the two strands, and also the polyamide backbone is more flexible. Because of this, PNA/DNA duplexes bind under a wider range of stringency conditions than DNA/DNA duplexes, making it easier to perform multiplex hybridization. Smaller probes can be used than with DNA due to the strong binding. In addition, it is more likely that single base mismatches can be determined with PNA/DNA hybridization because a single mismatch in a PNA/DNA 15-mer lowers the melting point ( $T_{sub.m}$ ) by 8°-20° C, vs. 4°-16° C for the DNA/DNA 15-mer duplex. Also, the absence of charge groups in PNA means that hybridization can

be done at low ionic strengths and reduce possible interference by salt during the analysis.

The present invention have uses which include, but are not limited to, detecting cancer in mammals. In particular the invention is useful during diagnosis of pathological cell proliferative neoplasias which include, but are not limited to: acute myelogenous leukemias including acute monocytic leukemia, acute myeloblastic leukemia, acute promyelocytic leukemia, acute myelomonocytic leukemia, acute erythroleukemia, acute megakaryocytic leukemia, and acute undifferentiated leukemia, etc.; and chronic myelogenous leukemias including chronic myelomonocytic leukemia, chronic granulocytic leukemia, etc. Preferred mammals include monkeys, apes, cats, dogs, cows, pigs, horses, rabbits and humans. Particularly preferred are humans.

Pathological cell proliferative disorders are often associated with inappropriate activation of proto-oncogenes. (Germann, E. P. et al., "The Etiology of Acute Leukemia: Molecular Genetics and Viral Oncology," in Neoplastic Diseases of the Blood. Vol 1., Wiernik, P. H. et al. eds., 161-182 (1985)). Neoplasias are now believed to result from the qualitative alteration of a normal cellular gene product, or from the quantitative modification of gene expression by insertion into the chromosome of a viral sequence, by chromosomal translocation of a gene to a more actively transcribed region, or by some other mechanism. (Germann et al., supra) It is likely that mutated or altered expression of specific genes is involved in the pathogenesis of some leukemias, among other tissues and cell types. (Germann et al., supra) Indeed, the human counterparts of the oncogenes involved in some animal neoplasias have been amplified or translocated in some cases of human leukemia and carcinoma. (Germann et al., supra)

For example, c-myc expression is highly amplified in the non-lymphocytic leukemia cell line HL-60. When HL-60 cells are chemically induced to stop proliferation, the level of c-myc is found to be downregulated. (International Publication Number WO 91/15580). However, it has been shown that exposure of HL-60 cells to a DNA construct that is complementary to the 5' end of c-myc or c-

myb blocks translation of the corresponding mRNAs which downregulates expression of the c-myc or c-myb proteins and causes arrest of cell proliferation and differentiation of the treated cells. (International Publication Number WO 91/15580; Wickstrom et al., Proc. Natl. Acad. Sci. 85:1028 (1988); Anfossi et al., Proc. Natl. Acad. Sci. 86:3379 (1989)). However, the skilled artisan would appreciate the present invention's usefulness is not limited to treatment of proliferative disorders of hematopoietic cells and tissues, in light of the numerous cells and cell types of varying origins which are known to exhibit proliferative phenotypes.

In addition to the foregoing, a prostate cancer antigen polynucleotide can be used to control gene expression through triple helix formation or through antisense DNA or RNA. Antisense techniques are discussed, for example, in Okano, J. Neurochem. 56: 560 (1991); "Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance Lee et al., Nucleic Acids Research 6: 3073 (1979); Cooney et al., Science 241: 456 (1988); and Dervan et al., Science 251: 1360 (1991). Both methods rely on binding of the polynucleotide to a complementary DNA or RNA. For these techniques, preferred polynucleotides are usually oligonucleotides 20 to 40 bases in length and complementary to either the region of the gene involved in transcription (triple helix - see Lee et al., Nucl. Acids Res. 6:3073 (1979); Cooney et al., Science 241:456 (1988); and Dervan et al., Science 251:1360 (1991) ) or to the mRNA itself (antisense - Okano, J. Neurochem. 56:560 (1991); Oligodeoxy-nucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988).) Triple helix formation optimally results in a shut-off of RNA transcription from DNA, while antisense RNA hybridization blocks translation of an mRNA molecule into polypeptide. The oligonucleotide described above can also be delivered to cells such that the antisense RNA or DNA may be expressed in vivo to inhibit production of polypeptide of the present invention antigens. Both techniques are effective in model systems, and the information disclosed herein can be used to design antisense or triple helix polynucleotides in an effort to treat disease, and in particular, for the treatment of proliferative diseases and/or conditions.

Polynucleotides of the present invention are also useful in gene therapy. One goal of gene therapy is to insert a normal gene into an organism having a defective gene, in an effort to correct the genetic defect. The polynucleotides disclosed in the present invention offer a means of targeting such genetic defects in a highly accurate manner. Another goal is to insert a new gene that was not present in the host genome, thereby producing a new trait in the host cell.

The polynucleotides are also useful for identifying individuals from minute biological samples. The United States military, for example, is considering the use of restriction fragment length polymorphism (RFLP) for identification of its personnel. In this technique, an individual's genomic DNA is digested with one or more restriction enzymes, and probed on a Southern blot to yield unique bands for identifying personnel. This method does not suffer from the current limitations of "Dog Tags" which can be lost, switched, or stolen, making positive identification difficult. The polynucleotides of the present invention can be used as additional DNA markers for RFLP.

The polynucleotides of the present invention can also be used as an alternative to RFLP, by determining the actual base-by-base DNA sequence of selected portions of an individual's genome. These sequences can be used to prepare PCR primers for amplifying and isolating such selected DNA, which can then be sequenced. Using this technique, individuals can be identified because each individual will have a unique set of DNA sequences. Once an unique ID database is established for an individual, positive identification of that individual, living or dead, can be made from extremely small tissue samples.

Forensic biology also benefits from using DNA-based identification techniques as disclosed herein. DNA sequences taken from very small biological samples such as tissues, e.g., hair or skin, or body fluids, e.g., blood, saliva, semen, synovial fluid, amniotic fluid, breast milk, lymph, pulmonary sputum or surfactant, urine, fecal matter, etc., can be amplified using PCR. In one prior art technique, gene sequences amplified from polymorphic loci, such as DQa class II HLA gene, are used in forensic biology to identify individuals. (Erlich, H., PCR Technology, Freeman



and Co. (1992).) Once these specific polymorphic loci are amplified, they are digested with one or more restriction enzymes, yielding an identifying set of bands on a Southern blot probed with DNA corresponding to the DQa class II HLA gene. Similarly, polynucleotides of the present invention can be used as polymorphic markers for forensic purposes.

There is also a need for reagents capable of identifying the source of a particular tissue. Such need arises, for example, in forensics when presented with tissue of unknown origin. Appropriate reagents can comprise, for example, DNA probes or primers specific to prostate or prostate cancer polynucleotides prepared from the sequences of the present invention. Panels of such reagents can identify tissue by species and/or by organ type. In a similar fashion, these reagents can be used to screen tissue cultures for contamination.

The polynucleotides of the present invention are also useful as hybridization probes for differential identification of the tissue(s) or cell type(s) present in a biological sample. Similarly, polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays) or cell type(s) (e.g., immunocytochemistry assays). In addition, for a number of disorders of the above tissues or cells, significantly higher or lower levels of gene expression of the polynucleotides/polypeptides of the present invention may be detected in certain tissues (e.g., tissues expressing polypeptides and/or polynucleotides of the present invention, prostate and prostate cancer tissues and/or cancerous and/or wounded tissues) or bodily fluids (e.g., serum, plasma, urine, synovial fluid or spinal fluid) taken from an individual having such a disorder, relative to a "standard" gene expression level, i.e., the expression level in healthy tissue from an individual not having the disorder.

Thus, the invention provides a diagnostic method of a disorder, which involves: (a) assaying gene expression level in cells or body fluid of an individual; (b) comparing the gene expression level with a standard gene expression level, whereby

an increase or decrease in the assayed gene expression level compared to the standard expression level is indicative of a disorder.

In the very least, the polynucleotides of the present invention can be used as molecular weight markers on Southern gels, as diagnostic probes for the presence of a specific mRNA in a particular cell type, as a probe to "subtract-out" known sequences in the process of discovering novel polynucleotides, for selecting and making oligomers for attachment to a "gene chip" or other support, to raise anti-DNA antibodies using DNA immunization techniques, and as an antigen to elicit an immune response.

### Uses of the Polypeptides

Each of the polypeptides identified herein can be used in numerous ways. The following description should be considered exemplary and utilizes known techniques.

Polypeptides and antibodies directed to polypeptides of the present invention are useful to provide immunological probes for differential identification of the tissue(s) (e.g., immunohistochemistry assays such as, for example, ABC immunoperoxidase (Hsu et al., J. Histochem. Cytochem. 29:577-580 (1981)) or cell type(s) (e.g., immunocytochemistry assays).

Antibodies can be used to assay levels of polypeptides encoded by polynucleotides of the invention in a biological sample using classical immunohistological methods known to those of skill in the art (e.g., see Jalkanen, et al., J. Cell. Biol. 101:976-985 (1985); Jalkanen, et al., J. Cell. Biol. 105:3087-3096 (1987)). Other antibody-based methods useful for detecting protein gene expression include immunoassays, such as the enzyme linked immunosorbent assay (ELISA) and the radioimmunoassay (RIA). Suitable antibody assay labels are known in the art and include enzyme labels, such as, glucose oxidase; radioisotopes, such as iodine ( $^{131}\text{I}$ ,  $^{125}\text{I}$ ,  $^{123}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{115\text{m}}\text{In}$ ,  $^{113\text{m}}\text{In}$ ,  $^{112}\text{In}$ ,  $^{111}\text{In}$ ), and technetium ( $^{99}\text{Tc}$ ,  $^{99\text{m}}\text{Tc}$ ), thallium ( $^{201}\text{Tl}$ ), gallium ( $^{68}\text{Ga}$ ,  $^{67}\text{Ga}$ ), palladium ( $^{103}\text{Pd}$ ), molybdenum ( $^{99}\text{Mo}$ ), xenon ( $^{133}\text{Xe}$ ), fluorine ( $^{18}\text{F}$ ),  $^{153}\text{Sm}$ ,  $^{177}\text{Lu}$ ,  $^{159}\text{Gd}$ ,  $^{149}\text{Pm}$ ,  $^{140}\text{La}$ ,  $^{175}\text{Yb}$ ,  $^{166}\text{Ho}$ ,  $^{90}\text{Y}$ ,  $^{47}\text{Sc}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{142}\text{Pr}$ ,  $^{105}\text{Rh}$ ,  $^{97}\text{Ru}$ ;

luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

In addition to assaying levels of polypeptide of the present invention in a biological sample, proteins can also be detected in vivo by imaging. Antibody labels or markers for in vivo imaging of protein include those detectable by X-radiography, NMR or ESR. For X-radiography, suitable labels include radioisotopes such as barium or cesium, which emit detectable radiation but are not overtly harmful to the subject. Suitable markers for NMR and ESR include those with a detectable characteristic spin, such as deuterium, which may be incorporated into the antibody by labeling of nutrients for the relevant hybridoma.

A protein-specific antibody or antibody fragment which has been labeled with an appropriate detectable imaging moiety, such as a radioisotope (for example,  $^{131}\text{I}$ ,  $^{112}\text{In}$ ,  $^{99\text{m}}\text{Tc}$ , ( $^{131}\text{I}$ ,  $^{125}\text{I}$ ,  $^{123}\text{I}$ ,  $^{121}\text{I}$ ), carbon ( $^{14}\text{C}$ ), sulfur ( $^{35}\text{S}$ ), tritium ( $^3\text{H}$ ), indium ( $^{115\text{m}}\text{In}$ ,  $^{113\text{m}}\text{In}$ ,  $^{112}\text{In}$ ,  $^{111}\text{In}$ ), and technetium ( $^{99}\text{Tc}$ ,  $^{99\text{m}}\text{Tc}$ ), thallium ( $^{201}\text{Tl}$ ), gallium ( $^{68}\text{Ga}$ ,  $^{67}\text{Ga}$ ), palladium ( $^{103}\text{Pd}$ ), molybdenum ( $^{99}\text{Mo}$ ), xenon ( $^{133}\text{Xe}$ ), fluorine ( $^{18}\text{F}$ ,  $^{153}\text{Sm}$ ,  $^{177}\text{Lu}$ ,  $^{159}\text{Gd}$ ,  $^{149}\text{Pm}$ ,  $^{140}\text{La}$ ,  $^{175}\text{Yb}$ ,  $^{166}\text{Ho}$ ,  $^{90}\text{Y}$ ,  $^{47}\text{Sc}$ ,  $^{186}\text{Re}$ ,  $^{188}\text{Re}$ ,  $^{142}\text{Pr}$ ,  $^{105}\text{Rh}$ ,  $^{97}\text{Ru}$ ), a radio-opaque substance, or a material detectable by nuclear magnetic resonance, is introduced (for example, parenterally, subcutaneously or intraperitoneally) into the mammal to be examined for immune system disorder. It will be understood in the art that the size of the subject and the imaging system used will determine the quantity of imaging moiety needed to produce diagnostic images. In the case of a radioisotope moiety, for a human subject, the quantity of radioactivity injected will normally range from about 5 to 20 millicuries of  $^{99\text{m}}\text{Tc}$ . The labeled antibody or antibody fragment will then preferentially accumulate at the location of cells which express the polypeptide encoded by a polynucleotide of the invention. *In vivo* tumor imaging is described in S.W. Burchiel et al., "Immunopharmacokinetics of Radiolabeled Antibodies and Their Fragments" (Chapter 13 in *Tumor Imaging: The Radiochemical Detection of Cancer*, S.W. Burchiel and B. A. Rhodes, eds., Masson Publishing Inc. (1982)).

In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (e.g., polypeptides encoded by polynucleotides of the invention and/or antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

In another embodiment, the invention provides a method for the specific destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention in association with toxins or cytotoxic prodrugs.

By "toxin" is meant one or more compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNase, alpha toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. "Toxin" also includes a cytostatic or cytocidal agent, a therapeutic agent or a radioactive metal ion, e.g., alpha-emitters such as, for example,  $^{213}\text{Bi}$ , or other radioisotopes such as, for example,  $^{103}\text{Pd}$ ,  $^{133}\text{Xe}$ ,  $^{131}\text{I}$ ,  $^{68}\text{Ge}$ ,  $^{57}\text{Co}$ ,  $^{65}\text{Zn}$ ,  $^{85}\text{Sr}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ ,  $^{90}\text{Y}$ ,  $^{153}\text{Sm}$ ,  $^{153}\text{Gd}$ ,  $^{169}\text{Yb}$ ,  $^{51}\text{Cr}$ ,  $^{54}\text{Mn}$ ,  $^{75}\text{Se}$ ,  $^{113}\text{Sn}$ ,  $^{90}\text{Yttrium}$ ,  $^{117}\text{Tin}$ ,  $^{186}\text{Rhenium}$ ,  $^{166}\text{Holmium}$ , and  $^{188}\text{Rhenium}$ ; luminescent labels, such as luminol; and fluorescent labels, such as fluorescein and rhodamine, and biotin.

Techniques known in the art may be applied to label polypeptides of the invention (including antibodies). Such techniques include, but are not limited to, the

use of bifunctional conjugating agents (see e.g., U.S. Patent Nos. 5,756,065; 5,714,631; 5,696,239; 5,652,361; 5,505,931; 5,489,425; 5,435,990; 5,428,139; 5,342,604; 5,274,119; 4,994,560; and 5,808,003; the contents of each of which are hereby incorporated by reference in its entirety).

5           Thus, the invention provides a diagnostic method of a disorder, which involves (a) assaying the expression level of a prostate cancer polypeptide of the present invention in cells or body fluid of an individual, or more preferably, assaying the expression level of a prostate cancer polypeptide of the present invention in prostate cells or semen of an individual; and (b) comparing the assayed polypeptide  
10   expression level with a standard polypeptide expression level, whereby an increase or decrease in the assayed polypeptide expression level compared to the standard expression level is indicative of a disorder. With respect to cancer, the presence of a relatively high amount of transcript in biopsied tissue from an individual may indicate a predisposition for the development of the disease, or may provide a means for  
15   detecting the disease prior to the appearance of actual clinical symptoms. A more definitive diagnosis of this type may allow health professionals to employ preventative measures or aggressive treatment earlier thereby preventing the development or further progression of the cancer.

          Moreover, prostate cancer antigen polypeptides of the present invention can  
20   be used to treat or prevent diseases or conditions such as, for example, neural disorders, immune system disorders, muscular disorders, reproductive disorders, gastrointestinal disorders, pulmonary disorders, cardiovascular disorders, renal disorders, proliferative disorders, and/or cancerous diseases and conditions, preferably proliferative disorders of the prostate, and/or cancerous disease and  
25   conditions. For example, patients can be administered a polypeptide of the present invention in an effort to replace absent or decreased levels of the polypeptide (e.g., insulin), to supplement absent or decreased levels of a different polypeptide (e.g., hemoglobin S for hemoglobin B, SOD, catalase, DNA repair proteins), to inhibit the activity of a polypeptide (e.g., an oncogene or tumor suppressor), to activate the  
30   activity of a polypeptide (e.g., by binding to a receptor), to reduce the activity of a

membrane bound receptor by competing with it for free ligand (e.g., soluble TNF receptors used in reducing inflammation), or to bring about a desired response (e.g., blood vessel growth inhibition, enhancement of the immune response to proliferative cells or tissues).

5 Similarly, antibodies directed to a polypeptide of the present invention can also be used to treat disease (as described supra, and elsewhere herein). For example, administration of an antibody directed to a polypeptide of the present invention can bind, and/or neutralize the polypeptide, and/or reduce overproduction of the polypeptide. Similarly, administration of an antibody can activate the polypeptide,  
10 such as by binding to a polypeptide bound to a membrane (receptor).

At the very least, the polypeptides of the present invention can be used as molecular weight markers on SDS-PAGE gels or on molecular sieve gel filtration columns using methods well known to those of skill in the art. Polypeptides can also be used to raise antibodies, which in turn are used to measure protein expression from  
15 a recombinant cell, as a way of assessing transformation of the host cell. Moreover, the polypeptides of the present invention can be used to test the following biological activities.

#### **Gene Therapy Methods**

20 Another aspect of the present invention is to gene therapy methods for treating or preventing disorders, diseases and conditions. The gene therapy methods relate to the introduction of nucleic acid (DNA, RNA and antisense DNA or RNA) sequences into an animal to achieve expression of the polypeptide of the present invention. This method requires a polynucleotide which codes for a polypeptide of the present  
25 invention operatively linked to a promoter and any other genetic elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques are known in the art, see, for example, WO90/11092, which is herein incorporated by reference.

Thus, for example, cells from a patient may be engineered with a  
30 polynucleotide (DNA or RNA) comprising a promoter operably linked to a

polynucleotide of the present invention ex vivo, with the engineered cells then being provided to a patient to be treated with the polypeptide of the present invention. Such methods are well-known in the art. For example, see Belldegrin, A., et al., J. Natl. Cancer Inst. 85: 207-216 (1993); Ferrantini, M. et al., Cancer Research 53: 1107-1112 (1993); Ferrantini, M. et al., J. Immunology 153: 4604-4615 (1994); Kaido, T., et al., Int. J. Cancer 60: 221-229 (1995); Ogura, H., et al., Cancer Research 50: 5102-5106 (1990); Santodonato, L., et al., Human Gene Therapy 7:1-10 (1996); Santodonato, L., et al., Gene Therapy 4:1246-1255 (1997); and Zhang, J.-F. et al., Cancer Gene Therapy 3: 31-38 (1996)), which are herein incorporated by reference. In one embodiment, the cells which are engineered are arterial cells. The arterial cells may be reintroduced into the patient through direct injection to the artery, the tissues surrounding the artery, or through catheter injection.

As discussed in more detail below, the polynucleotide constructs can be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, and the like). The polynucleotide constructs may be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

In one embodiment, the polynucleotide of the present invention is delivered as a naked polynucleotide. The term "naked" polynucleotide, DNA or RNA refers to sequences that are free from any delivery vehicle that acts to assist, promote or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotide of the present invention can also be delivered in liposome formulations and lipofectin formulations and the like can be prepared by methods well known to those skilled in the art. Such methods are described, for example, in U.S. Patent Nos. 5,593,972, 5,589,466, and 5,580,859, which are herein incorporated by reference.

The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Appropriate vectors include pWLNEO.

pSV2CAT, pOG44, pXT1 and pSG available from Stratagene; pSVK3, pBPV, pMSG and pSVL available from Pharmacia; and pEF1/V5, pcDNA3.1, and pRc/CMV2 available from Invitrogen. Other suitable vectors will be readily apparent to the skilled artisan.

5 Any strong promoter known to those skilled in the art can be used for driving the expression of the polynucleotide sequence. Suitable promoters include adenoviral promoters, such as the adenoviral major late promoter; or heterologous promoters, such as the cytomegalovirus (CMV) promoter; the respiratory syncytial virus (RSV) promoter; inducible promoters, such as the MMT promoter, the metallothionein  
10 promoter; heat shock promoters; the albumin promoter; the ApoA1 promoter; human globin promoters; viral thymidine kinase promoters, such as the Herpes Simplex thymidine kinase promoter; retroviral LTRs; the b-actin promoter; and human growth hormone promoters. The promoter also may be the native promoter for the polynucleotide of the present invention.

15 Unlike other gene therapy techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

20 The polynucleotide construct can be delivered to the interstitial space of tissues within the an animal, including of muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular, fluid,  
25 mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of muscle tissue is preferred for  
30 the reasons discussed below. They may be conveniently delivered by injection into the



tissues comprising these cells. They are preferably delivered to and expressed in persistent, non-dividing cells which are differentiated, although delivery and expression may be achieved in non-differentiated or less completely differentiated cells, such as, for example, stem cells of blood or skin fibroblasts. In vivo muscle cells are particularly competent in their ability to take up and express polynucleotides.

For the naked nucleic acid sequence injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 mg/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration.

The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked DNA constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

The naked polynucleotides are delivered by any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, and so-called "gene guns". These delivery methods are known in the art.

The constructs may also be delivered with delivery vehicles such as viral sequences, viral particles, liposome formulations, lipofectin, precipitating agents, etc. Such methods of delivery are known in the art.

In certain embodiments, the polynucleotide constructs are complexed in a liposome preparation. Liposomal preparations for use in the instant invention include cationic (positively charged), anionic (negatively charged) and neutral preparations. However, cationic liposomes are particularly preferred because a tight charge

complex can be formed between the cationic liposome and the polyanionic nucleic acid. Cationic liposomes have been shown to mediate intracellular delivery of plasmid DNA (Felgner et al., Proc. Natl. Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference); mRNA (Malone et al., Proc. Natl. Acad. Sci. USA  
5 (1989) 86:6077-6081, which is herein incorporated by reference); and purified transcription factors (Debs et al., J. Biol. Chem. (1990) 265:10189-10192, which is herein incorporated by reference), in functional form.

Cationic liposomes are readily available. For example, N[1-2,3-dioleoyloxy)propyl]-N,N,N-triethylammonium (DOTMA) liposomes are  
10 particularly useful and are available under the trademark Lipofectin, from GIBCO BRL, Grand Island, N.Y. (See, also, Felgner et al., Proc. Natl Acad. Sci. USA (1987) 84:7413-7416, which is herein incorporated by reference). Other commercially available liposomes include transfectace (DDAB/DOPE) and DOTAP/DOPE (Boehringer).

15 Other cationic liposomes can be prepared from readily available materials using techniques well known in the art. See, e.g. PCT Publication No. WO 90/11092 (which is herein incorporated by reference) for a description of the synthesis of DOTAP (1,2-bis(oleoyloxy)-3-(trimethylammonio)propane) liposomes. Preparation of DOTMA liposomes is explained in the literature, see, e.g., P. Felgner et al., Proc.  
20 Natl. Acad. Sci. USA 84:7413-7417, which is herein incorporated by reference. Similar methods can be used to prepare liposomes from other cationic lipid materials.

Similarly, anionic and neutral liposomes are readily available, such as from Avanti Polar Lipids (Birmingham, Ala.), or can be easily prepared using readily available materials. Such materials include phosphatidyl, choline, cholesterol,  
25 phosphatidyl ethanolamine, dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), dioleoylphosphatidyl ethanolamine (DOPE), among others. These materials can also be mixed with the DOTMA and DOTAP starting materials in appropriate ratios. Methods for making liposomes using these materials are well known in the art.

For example, commercially dioleoylphosphatidyl choline (DOPC), dioleoylphosphatidyl glycerol (DOPG), and dioleoylphosphatidyl ethanolamine (DOPE) can be used in various combinations to make conventional liposomes, with or without the addition of cholesterol. Thus, for example, DOPG/DOPC vesicles can be prepared by drying 50 mg each of DOPG and DOPC under a stream of nitrogen gas into a sonication vial. The sample is placed under a vacuum pump overnight and is hydrated the following day with deionized water. The sample is then sonicated for 2 hours in a capped vial, using a Heat Systems model 350 sonicator equipped with an inverted cup (bath type) probe at the maximum setting while the bath is circulated at 15EC. Alternatively, negatively charged vesicles can be prepared without sonication to produce multilamellar vesicles or by extrusion through nucleopore membranes to produce unilamellar vesicles of discrete size. Other methods are known and available to those of skill in the art.

The liposomes can comprise multilamellar vesicles (MLVs), small unilamellar vesicles (SUVs), or large unilamellar vesicles (LUVs), with SUVs being preferred. The various liposome-nucleic acid complexes are prepared using methods well known in the art. See, e.g., Straubinger et al., *Methods of Immunology* (1983), 101:512-527, which is herein incorporated by reference. For example, MLVs containing nucleic acid can be prepared by depositing a thin film of phospholipid on the walls of a glass tube and subsequently hydrating with a solution of the material to be encapsulated. SUVs are prepared by extended sonication of MLVs to produce a homogeneous population of unilamellar liposomes. The material to be entrapped is added to a suspension of preformed MLVs and then sonicated. When using liposomes containing cationic lipids, the dried lipid film is resuspended in an appropriate solution such as sterile water or an isotonic buffer solution such as 10 mM Tris/NaCl, sonicated, and then the preformed liposomes are mixed directly with the DNA. The liposome and DNA form a very stable complex due to binding of the positively charged liposomes to the cationic DNA. SUVs find use with small nucleic acid fragments. LUVs are prepared by a number of methods, well known in the art. Commonly used methods include  $\text{Ca}^{2+}$ -EDTA chelation (Papahadjopoulos et al., *Biochim. Biophys. Acta*

(1975) 394:483; Wilson et al., Cell (1979) 17:77); ether injection (Deamer, D. and Bangham, A., Biochim. Biophys. Acta (1976) 443:629; Ostro et al., Biochem. Biophys. Res. Commun. (1977) 76:836; Fraley et al., Proc. Natl. Acad. Sci. USA (1979) 76:3348); detergent dialysis (Enoch, H. and Strittmatter, P., Proc. Natl. Acad. Sci. USA (1979) 76:145); and reverse-phase evaporation (REV) (Fraley et al., J. Biol. Chem. (1980) 255:10431; Szoka, F. and Papahadjopoulos, D., Proc. Natl. Acad. Sci. USA (1978) 75:145; Schaefer-Ridder et al., Science (1982) 215:166), which are herein incorporated by reference.

Generally, the ratio of DNA to liposomes will be from about 10:1 to about 1:10. Preferably, the ration will be from about 5:1 to about 1:5. More preferably, the ration will be about 3:1 to about 1:3. Still more preferably, the ratio will be about 1:1.

U.S. Patent No. 5,676,954 (which is herein incorporated by reference) reports on the injection of genetic material, complexed with cationic liposomes carriers, into mice. U.S. Patent Nos. 4,897,355, 4,946,787, 5,049,386, 5,459,127, 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 (which are herein incorporated by reference) provide cationic lipids for use in transfecting DNA into cells and mammals. U.S. Patent Nos. 5,589,466, 5,693,622, 5,580,859, 5,703,055, and international publication no. WO 94/9469 (which are herein incorporated by reference) provide methods for delivering DNA-cationic lipid complexes to mammals.

In certain embodiments, cells are engineered, ex vivo or in vivo, using a retroviral particle containing RNA which comprises a sequence encoding a polypeptide of the present invention. Retroviruses from which the retroviral plasmid vectors may be derived include, but are not limited to, Moloney Murine Leukemia Virus, spleen necrosis virus, Rous sarcoma Virus, Harvey Sarcoma Virus, avian leukosis virus, gibbon ape leukemia virus, human immunodeficiency virus, Myeloproliferative Sarcoma Virus, and mammary tumor virus.

The retroviral plasmid vector is employed to transduce packaging cell lines to form producer cell lines. Examples of packaging cells which may be transfected include, but are not limited to, the PE501, PA317, R-2, R-AM, PA12, T19-14X, VT-

19-17-H2, RCRE, RCRIP, GP+E-86, GP+envAm12, and DAN cell lines as described in Miller, Human Gene Therapy 1:5-14 (1990), which is incorporated herein by reference in its entirety. The vector may transduce the packaging cells through any means known in the art. Such means include, but are not limited to, electroporation, the use of liposomes, and  $\text{CaPO}_4$  precipitation. In one alternative, the retroviral plasmid vector may be encapsulated into a liposome, or coupled to a lipid, and then administered to a host.

The producer cell line generates infectious retroviral vector particles which include polynucleotide encoding a polypeptide of the present invention. Such retroviral vector particles then may be employed, to transduce eukaryotic cells, either in vitro or in vivo. The transduced eukaryotic cells will express a polypeptide of the present invention.

In certain other embodiments, cells are engineered, ex vivo or in vivo, with polynucleotide contained in an adenovirus vector. Adenovirus can be manipulated such that it encodes and expresses a polypeptide of the present invention, and at the same time is inactivated in terms of its ability to replicate in a normal lytic viral life cycle. Adenovirus expression is achieved without integration of the viral DNA into the host cell chromosome, thereby alleviating concerns about insertional mutagenesis. Furthermore, adenoviruses have been used as live enteric vaccines for many years with an excellent safety profile (Schwartz, A. R. et al. (1974) Am. Rev. Respir. Dis. 109:233-238). Finally, adenovirus mediated gene transfer has been demonstrated in a number of instances including transfer of alpha-1-antitrypsin and CFTR to the lungs of cotton rats (Rosenfeld, M. A. et al. (1991) Science 252:431-434; Rosenfeld et al., (1992) Cell 68:143-155). Furthermore, extensive studies to attempt to establish adenovirus as a causative agent in human cancer were uniformly negative (Green, M. et al. (1979) Proc. Natl. Acad. Sci. USA 76:6606).

Suitable adenoviral vectors useful in the present invention are described, for example, in Kozarsky and Wilson, Curr. Opin. Genet. Devel. 3:499-503 (1993); Rosenfeld et al., Cell 68:143-155 (1992); Engelhardt et al., Human Genet. Ther. 4:759-769 (1993); Yang et al., Nature Genet. 7:362-369 (1994); Wilson et al., Nature

365:691-692 (1993); and U.S. Patent No. 5,652,224, which are herein incorporated by reference. For example, the adenovirus vector Ad2 is useful and can be grown in human 293 cells. These cells contain the E1 region of adenovirus and constitutively express Ela and Elb, which complement the defective adenoviruses by providing the products of the genes deleted from the vector. In addition to Ad2, other varieties of adenovirus (e.g., Ad3, Ad5, and Ad7) are also useful in the present invention.

Preferably, the adenoviruses used in the present invention are replication deficient. Replication deficient adenoviruses require the aid of a helper virus and/or packaging cell line to form infectious particles. The resulting virus is capable of infecting cells and can express a polynucleotide of interest which is operably linked to a promoter, but cannot replicate in most cells. Replication deficient adenoviruses may be deleted in one or more of all or a portion of the following genes: Ela, Elb, E3, E4, E2a, or L1 through L5.

In certain other embodiments, the cells are engineered, ex vivo or in vivo, using an adeno-associated virus (AAV). AAVs are naturally occurring defective viruses that require helper viruses to produce infectious particles (Muzyczka, N., Curr. Topics in Microbiol. Immunol. 158:97 (1992)). It is also one of the few viruses that may integrate its DNA into non-dividing cells. Vectors containing as little as 300 base pairs of AAV can be packaged and can integrate, but space for exogenous DNA is limited to about 4.5 kb. Methods for producing and using such AAVs are known in the art. See, for example, U.S. Patent Nos. 5,139,941, 5,173,414, 5,354,678, 5,436,146, 5,474,935, 5,478,745, and 5,589,377.

For example, an appropriate AAV vector for use in the present invention will include all the sequences necessary for DNA replication, encapsidation, and host-cell integration. The polynucleotide construct is inserted into the AAV vector using standard cloning methods, such as those found in Sambrook et al., Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Press (1989). The recombinant AAV vector is then transfected into packaging cells which are infected with a helper virus, using any standard technique, including lipofection, electroporation, calcium phosphate precipitation, etc. Appropriate helper viruses include adenoviruses.

cytomegaloviruses, vaccinia viruses, or herpes viruses. Once the packaging cells are transfected and infected, they will produce infectious AAV viral particles which contain the polynucleotide construct. These viral particles are then used to transduce eukaryotic cells, either ex vivo or in vivo. The transduced cells will contain the polynucleotide construct integrated into its genome, and will express a polypeptide of the invention.

Another method of gene therapy involves operably associating heterologous control regions and endogenous polynucleotide sequences (e.g. encoding a polypeptide of the present invention) via homologous recombination (see, e.g., U.S. Patent No. 5,641,670, issued June 24, 1997; International Publication No. WO 96/29411, published September 26, 1996; International Publication No. WO 94/12650, published August 4, 1994; Koller et al., Proc. Natl. Acad. Sci. USA 86:8932-8935 (1989); and Zijlstra et al., Nature 342:435-438 (1989). This method involves the activation of a gene which is present in the target cells, but which is not normally expressed in the cells, or is expressed at a lower level than desired.

Polynucleotide constructs are made, using standard techniques known in the art, which contain the promoter with targeting sequences flanking the promoter. Suitable promoters are described herein. The targeting sequence is sufficiently complementary to an endogenous sequence to permit homologous recombination of the promoter-targeting sequence with the endogenous sequence. The targeting sequence will be sufficiently near the 5' end of the desired endogenous polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination.

The promoter and the targeting sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter. The amplified promoter and targeting sequences are digested and ligated together.

The promoter-targeting sequence construct is delivered to the cells, either as naked polynucleotide, or in conjunction with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, whole viruses, lipofection, precipitating agents, etc., described in more detail above. The P promoter-targeting sequence can  
5 be delivered by any method, included direct needle injection, intravenous injection, topical administration, catheter infusion, particle accelerators, etc. The methods are described in more detail below.

The promoter-targeting sequence construct is taken up by cells. Homologous recombination between the construct and the endogenous sequence takes place, such  
10 that an endogenous sequence is placed under the control of the promoter. The promoter then drives the expression of the endogenous sequence.

Preferably, the polynucleotide encoding a polypeptide of the present invention contains a secretory signal sequence that facilitates secretion of the protein. Typically, the signal sequence is positioned in the coding region of the polynucleotide  
15 to be expressed towards or at the 5' end of the coding region. The signal sequence may be homologous or heterologous to the polynucleotide of interest and may be homologous or heterologous to the cells to be transfected. Additionally, the signal sequence may be chemically synthesized using methods known in the art.

Any mode of administration of any of the above-described polynucleotides  
20 constructs can be used so long as the mode results in the expression of one or more molecules in an amount sufficient to provide a therapeutic effect. This includes direct needle injection, systemic injection, catheter infusion, biolistic injectors, particle accelerators (i.e., "gene guns"), gelfoam sponge depots, other commercially available depot materials, osmotic pumps (e.g., Alza minipumps), oral or suppository solid  
25 (tablet or pill) pharmaceutical formulations, and decanting or topical applications during surgery. For example, direct injection of naked calcium phosphate-precipitated plasmid into rat liver and rat spleen or a protein-coated plasmid into the portal vein has resulted in gene expression of the foreign gene in the rat livers (Kaneda et al., Science 243:375 (1989)).



A preferred method of local administration is by direct injection. Preferably, a recombinant molecule of the present invention complexed with a delivery vehicle is administered by direct injection into or locally within the area of arteries. Administration of a composition locally within the area of arteries refers to injecting  
5 the composition centimeters and preferably, millimeters within arteries.

Another method of local administration is to contact a polynucleotide construct of the present invention in or around a surgical wound. For example, a patient can undergo surgery and the polynucleotide construct can be coated on the surface of tissue inside the wound or the construct can be injected into areas of tissue  
10 inside the wound.

Therapeutic compositions useful in systemic administration, include recombinant molecules of the present invention complexed to a targeted delivery vehicle of the present invention. Suitable delivery vehicles for use with systemic administration comprise liposomes comprising ligands for targeting the vehicle to a  
15 particular site.

Preferred methods of systemic administration, include intravenous injection, aerosol, oral and percutaneous (topical) delivery. Intravenous injections can be performed using methods standard in the art. Aerosol delivery can also be performed using methods standard in the art (see, for example, Stribling et al., Proc. Natl. Acad.  
20 Sci. USA 189:11277-11281, 1992, which is incorporated herein by reference). Oral delivery can be performed by complexing a polynucleotide construct of the present invention to a carrier capable of withstanding degradation by digestive enzymes in the gut of an animal. Examples of such carriers, include plastic capsules or tablets, such as those known in the art. Topical delivery can be performed by mixing a  
25 polynucleotide construct of the present invention with a lipophilic reagent (e.g., DMSO) that is capable of passing into the skin.

Determining an effective amount of substance to be delivered can depend upon a number of factors including, for example, the chemical structure and biological activity of the substance, the age and weight of the animal, the precise  
30 condition requiring treatment and its severity, and the route of administration. The

frequency of treatments depends upon a number of factors, such as the amount of polynucleotide constructs administered per dose, as well as the health and history of the subject. The precise amount, number of doses, and timing of doses will be determined by the attending physician or veterinarian.

5           Therapeutic compositions of the present invention can be administered to any animal, preferably to mammals and birds. Preferred mammals include humans, dogs, cats, mice, rats, rabbits sheep, cattle, horses and pigs, with humans being particularly preferred.

#### 10    Biological Activities

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, can be used in assays to test for one or more biological activities. If these polynucleotides or polypeptides, or agonists or antagonists of the present invention, do exhibit activity in a particular assay, it is likely that these molecules may be  
15 involved in the diseases associated with the biological activity. Thus, the polynucleotides and polypeptides, and agonists or antagonists could be used to treat the associated disease.

#### Immune Activity

20           A polypeptide or polynucleotide, or agonists or antagonists of the present invention may be useful in treating deficiencies or disorders of the immune system, by activating or inhibiting the proliferation, differentiation, or mobilization (chemotaxis) of immune cells. Immune cells develop through a process called hematopoiesis, producing myeloid (platelets, red blood cells, neutrophils, and  
25 macrophages) and lymphoid (B and T lymphocytes) cells from pluripotent stem cells. The etiology of these immune deficiencies or disorders may be genetic, somatic, such as cancer or some autoimmune disorders, acquired (e.g., by chemotherapy or toxins), or infectious. Moreover, polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used as a marker or detector of a particular immune  
30 system disease or disorder.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention may be useful in treating or detecting deficiencies or disorders of hematopoietic cells. Polynucleotides or polypeptides, or agonists or antagonists of the present invention could be used to increase differentiation and proliferation of hematopoietic cells, including the pluripotent stem cells, in an effort to treat those disorders associated with a decrease in certain (or many) types hematopoietic cells. Examples of immunologic deficiency syndromes include, but are not limited to: blood protein disorders (e.g. agammaglobulinemia, dysgammaglobulinemia), ataxia telangiectasia, common variable immunodeficiency, Digeorge Syndrome, HIV infection, HTLV-BLV infection, leukocyte adhesion deficiency syndrome, lymphopenia, phagocyte bactericidal dysfunction, severe combined immunodeficiency (SCIDs), Wiskott-Aldrich Disorder, anemia, thrombocytopenia, or hemoglobinuria.

Moreover, polynucleotides or polypeptides, or agonists or antagonists of the present invention could also be used to modulate hemostatic (the stopping of bleeding) or thrombolytic activity (clot formation). For example, by increasing hemostatic or thrombolytic activity, polynucleotides or polypeptides, or agonists or antagonists of the present invention could be used to treat blood coagulation disorders (e.g., afibrinogenemia, factor deficiencies), blood platelet disorders (e.g. thrombocytopenia), or wounds resulting from trauma, surgery, or other causes. Alternatively, polynucleotides or polypeptides, or agonists or antagonists of the present invention that can decrease hemostatic or thrombolytic activity could be used to inhibit or dissolve clotting. These molecules could be important in the treatment of heart attacks (infarction), strokes, or scarring.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention may also be useful in treating or detecting autoimmune disorders. Many autoimmune disorders result from inappropriate recognition of self as foreign material by immune cells. This inappropriate recognition results in an immune response leading to the destruction of the host tissue. Therefore, the administration of polynucleotides or polypeptides, or agonists or antagonists of the present invention

that can inhibit an immune response, particularly the proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing autoimmune disorders.

Examples of autoimmune disorders that can be treated or detected include, but  
5 are not limited to: Addison's Disease, hemolytic anemia, antiphospholipid syndrome, rheumatoid arthritis, dermatitis, allergic encephalomyelitis, glomerulonephritis, Goodpasture's Syndrome, Graves' Disease, Multiple Sclerosis, Myasthenia Gravis, Neuritis, Ophthalmia, Bullous Pemphigoid, Pemphigus, Polyendocrinopathies, Purpura, Reiter's Disease, Stiff-Man Syndrome, Autoimmune Thyroiditis, Systemic  
10 Lupus Erythematosus, Autoimmune Pulmonary Inflammation, Guillain-Barre Syndrome, insulin dependent diabetes mellitus, and autoimmune inflammatory eye disease.

Similarly, allergic reactions and conditions, such as asthma (particularly allergic asthma) or other respiratory problems, may also be treated by polynucleotides  
15 or polypeptides, or agonists or antagonists of the present invention. Moreover, these molecules can be used to treat anaphylaxis, hypersensitivity to an antigenic molecule, or blood group incompatibility.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention may also be used to treat and/or prevent organ rejection or graft-versus-host  
20 disease (GVHD). Organ rejection occurs by host immune cell destruction of the transplanted tissue through an immune response. Similarly, an immune response is also involved in GVHD, but, in this case, the foreign transplanted immune cells destroy the host tissues. The administration of polynucleotides or polypeptides, or agonists or antagonists of the present invention that inhibits an immune response,  
25 particularly the proliferation, differentiation, or chemotaxis of T-cells, may be an effective therapy in preventing organ rejection or GVHD.

Similarly, polynucleotides or polypeptides, or agonists or antagonists of the present invention may also be used to modulate inflammation. For example, polynucleotides or polypeptides, or agonists or antagonists of the present invention  
30 may inhibit the proliferation and differentiation of cells involved in an inflammatory

response. These molecules can be used to treat inflammatory conditions, both chronic and acute conditions, including chronic prostatitis, granulomatous prostatitis and malacoplakia, inflammation associated with infection (e.g., septic shock, sepsis, or systemic inflammatory response syndrome (SIRS)), ischemia-reperfusion injury, endotoxin lethality, arthritis, complement-mediated hyperacute rejection, nephritis, cytokine or chemokine induced lung injury, inflammatory bowel disease. Crohn's disease, or resulting from over production of cytokines (e.g., TNF or IL-1.)

### **Hyperproliferative Disorders**

Polynucleotides or polypeptides, or agonists or antagonists of the present invention can be used to treat or detect hyperproliferative disorders, including neoplasms. Polynucleotides or polypeptides, or agonists or antagonists of the present invention may inhibit the proliferation of the disorder through direct or indirect interactions. Alternatively, Polynucleotides or polypeptides, or agonists or antagonists of the present invention may proliferate other cells which can inhibit the hyperproliferative disorder.

For example, by increasing an immune response, particularly increasing antigenic qualities of the hyperproliferative disorder or by proliferating, differentiating, or mobilizing T-cells, hyperproliferative disorders can be treated. This immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, decreasing an immune response may also be a method of treating hyperproliferative disorders, such as a chemotherapeutic agent.

Examples of hyperproliferative disorders that can be treated or detected by Polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to neoplasms located in the: colon, abdomen, bone, breast, digestive system, liver, pancreas, peritoneum, endocrine glands (adrenal, parathyroid, pituitary, testicles, ovary, thymus, thyroid), eye, head and neck, nervous (central and peripheral), lymphatic system, pelvic, skin, soft tissue, spleen, thoracic, and urogenital.

Similarly, other hyperproliferative disorders can also be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention. Examples of such hyperproliferative disorders include, but are not limited to: hypergammaglobulinemia, lymphoproliferative disorders, paraproteinemias, purpura, sarcoidosis, Sezary Syndrome, Waldenström's Macroglobulinemia, Gaucher's Disease, histiocytosis, and any other hyperproliferative disease, besides neoplasia, located in an organ system listed above.

One preferred embodiment utilizes polynucleotides of the present invention to inhibit aberrant cellular division, by gene therapy using the present invention, and/or protein fusions or fragments thereof.

Thus, the present invention provides a method for treating cell proliferative disorders by inserting into an abnormally proliferating cell a polynucleotide of the present invention, wherein said polynucleotide represses said expression.

Another embodiment of the present invention provides a method of treating cell-proliferative disorders in individuals comprising administration of one or more active gene copies of the present invention to an abnormally proliferating cell or cells. In a preferred embodiment, polynucleotides of the present invention is a DNA construct comprising a recombinant expression vector effective in expressing a DNA sequence encoding said polynucleotides. In another preferred embodiment of the present invention, the DNA construct encoding the polynucleotides of the present invention is inserted into cells to be treated utilizing a retrovirus, or more preferably an adenoviral vector (See G J. Nabel, et. al., PNAS 1999 96: 324-326, which is hereby incorporated by reference). In a most preferred embodiment, the viral vector is defective and will not transform non-proliferating cells, only proliferating cells. Moreover, in a preferred embodiment, the polynucleotides of the present invention inserted into proliferating cells either alone, or in combination with or fused to other polynucleotides, can then be modulated via an external stimulus (i.e. magnetic, specific small molecule, chemical, or drug administration, etc.), which acts upon the promoter upstream of said polynucleotides to induce expression of the encoded protein product. As such the beneficial therapeutic affect of the present invention

may be expressly modulated (i.e. to increase, decrease, or inhibit expression of the present invention) based upon said external stimulus.

Polynucleotides of the present invention may be useful in repressing expression of oncogenic genes or antigens. By "repressing expression of the oncogenic genes " is intended the suppression of the transcription of the gene, the degradation of the gene transcript (pre-message RNA), the inhibition of splicing, the destruction of the messenger RNA, the prevention of the post-translational modifications of the protein, the destruction of the protein, or the inhibition of the normal function of the protein.

For local administration to abnormally proliferating cells, polynucleotides of the present invention may be administered by any method known to those of skill in the art including, but not limited to transfection, electroporation, microinjection of cells, or in vehicles such as liposomes, lipofectin, or as naked polynucleotides, or any other method described throughout the specification. The polynucleotide of the present invention may be delivered by known gene delivery systems such as, but not limited to, retroviral vectors (Gilboa, J. Virology 44:845 (1982); Hocke, Nature 320:275 (1986); Wilson, et al., Proc. Natl. Acad. Sci. U.S.A. 85:3014), vaccinia virus system (Chakrabarty et al., Mol. Cell Biol. 5:3403 (1985) or other efficient DNA delivery systems (Yates et al., Nature 313:812 (1985)) known to those skilled in the art. These references are exemplary only and are hereby incorporated by reference. In order to specifically deliver or transfect cells which are abnormally proliferating and spare non-dividing cells, it is preferable to utilize a retrovirus, or adenoviral (as described in the art and elsewhere herein) delivery system known to those of skill in the art. Since host DNA replication is required for retroviral DNA to integrate and the retrovirus will be unable to self replicate due to the lack of the retrovirus genes needed for its life cycle. Utilizing such a retroviral delivery system for polynucleotides of the present invention will target said gene and constructs to abnormally proliferating cells and will spare the non-dividing normal cells.

The polynucleotides of the present invention may be delivered directly to cell proliferative disorder/disease sites in internal organs, body cavities and the like by use

of imaging devices used to guide an injecting needle directly to the disease site. The polynucleotides of the present invention may also be administered to disease sites at the time of surgical intervention.

By "cell proliferative disease" is meant any human or animal disease or disorder, affecting any one or any combination of organs, cavities, or body parts, which is characterized by single or multiple local abnormal proliferations of cells, groups of cells, or tissues, whether benign or malignant.

Any amount of the polynucleotides of the present invention may be administered as long as it has a biologically inhibiting effect on the proliferation of the treated cells. Moreover, it is possible to administer more than one of the polynucleotide of the present invention simultaneously to the same site. By "biologically inhibiting" is meant partial or total growth inhibition as well as decreases in the rate of proliferation or growth of the cells. The biologically inhibitory dose may be determined by assessing the effects of the polynucleotides of the present invention on target malignant or abnormally proliferating cell growth in tissue culture, tumor growth in animals and cell cultures, or any other method known to one of ordinary skill in the art.

The present invention is further directed to antibody-based therapies which involve administering of anti-polypeptides and anti-polynucleotide antibodies to a mammalian, preferably human, patient for treating one or more of the described disorders. Methods for producing anti-polypeptides and anti-polynucleotide antibodies polyclonal and monoclonal antibodies are described in detail elsewhere herein. Such antibodies may be provided in pharmaceutically acceptable compositions as known in the art or as described herein.

A summary of the ways in which the antibodies of the present invention may be used therapeutically includes binding polynucleotides or polypeptides of the present invention locally or systemically in the body or by direct cytotoxicity of the antibody, e.g. as mediated by complement (CDC) or by effector cells (ADCC). Some of these approaches are described in more detail below. Armed with the teachings provided herein, one of ordinary skill in the art will know how to use the antibodies of



the present invention for diagnostic, monitoring or therapeutic purposes without undue experimentation.

In particular, the antibodies, fragments and derivatives of the present invention are useful for treating a subject having or developing cell proliferative and/or differentiation disorders as described herein. Such treatment comprises administering a single or multiple doses of the antibody, or a fragment, derivative, or a conjugate thereof.

The antibodies of this invention may be advantageously utilized in combination with other monoclonal or chimeric antibodies, or with lymphokines or hematopoietic growth factors, for example., which serve to increase the number or activity of effector cells which interact with the antibodies.

It is preferred to use high affinity and/or potent in vivo inhibiting and/or neutralizing antibodies against polypeptides or polynucleotides of the present invention, fragments or regions thereof, for both immunoassays directed to and therapy of disorders related to polynucleotides or polypeptides, including fragments thereof, of the present invention. Such antibodies, fragments, or regions, will preferably have an affinity for polynucleotides or polypeptides, including fragments thereof. Preferred binding affinities include those with a dissociation constant or  $K_d$  less than  $5 \times 10^{-6}M$ ,  $10^{-6}M$ ,  $5 \times 10^{-7}M$ ,  $10^{-7}M$ ,  $5 \times 10^{-8}M$ ,  $10^{-8}M$ ,  $5 \times 10^{-9}M$ ,  $10^{-9}M$ ,  $5 \times 10^{-10}M$ ,  $10^{-10}M$ ,  $5 \times 10^{-11}M$ ,  $10^{-11}M$ ,  $5 \times 10^{-12}M$ ,  $10^{-12}M$ ,  $5 \times 10^{-13}M$ ,  $10^{-13}M$ ,  $5 \times 10^{-14}M$ ,  $10^{-14}M$ ,  $5 \times 10^{-15}M$ , and  $10^{-15}M$ .

Moreover, polypeptides of the present invention are useful in inhibiting the angiogenesis of proliferative cells or tissues, either alone, as a protein fusion, or in combination with other polypeptides directly or indirectly, as described elsewhere herein. In a most preferred embodiment, said anti-angiogenesis effect may be achieved indirectly, for example, through the inhibition of hematopoietic, tumor-specific cells, such as tumor-associated macrophages (See Joseph IB, et al. J Natl Cancer Inst, 90(21):1648-53 (1998). which is hereby incorporated by reference). Antibodies directed to polypeptides or polynucleotides of the present invention may also result in inhibition of angiogenesis directly, or indirectly (See Witte L. et al.,

Cancer Metastasis Rev. 17(2):155-61 (1998), which is hereby incorporated by reference)).

Polypeptides, including protein fusions, of the present invention, or fragments thereof may be useful in inhibiting proliferative cells or tissues through the induction of apoptosis. Said polypeptides may act either directly, or indirectly to induce apoptosis of proliferative cells and tissues, for example in the activation of a death-domain receptor, such as tumor necrosis factor (TNF) receptor-1, CD95 (Fas/APO-1), TNF-receptor-related apoptosis-mediated protein (TRAMP) and TNF-related apoptosis-inducing ligand (TRAIL) receptor-1 and -2 (See Schulze-Osthoff K, et.al., Eur J Biochem 254(3):439-59 (1998), which is hereby incorporated by reference). Moreover, in another preferred embodiment of the present invention, said polypeptides may induce apoptosis through other mechanisms, such as in the activation of other proteins which will activate apoptosis, or through stimulating the expression of said proteins, either alone or in combination with small molecule drugs or adjuvants, such as apoptonin, galectins, thioredoxins, antiinflammatory proteins (See for example, Mutat Res 400(1-2):447-55 (1998), Med Hypotheses.50(5):423-33 (1998), Chem Biol Interact. Apr 24;111-112:23-34 (1998), J Mol Med.76(6):402-12 (1998), Int J Tissue React;20(1):3-15 (1998), which are all hereby incorporated by reference).

Polypeptides, including protein fusions to, or fragments thereof, of the present invention are useful in inhibiting the metastasis of proliferative cells or tissues. Inhibition may occur as a direct result of administering polypeptides, or antibodies directed to said polypeptides as described elsewhere herein, or indirectly, such as activating the expression of proteins known to inhibit metastasis, for example alpha 4 integrins, (See, e.g., Curr Top Microbiol Immunol 1998;231:125-41, which is hereby incorporated by reference). Such therapeutic affects of the present invention may be achieved either alone, or in combination with small molecule drugs or adjuvants.

In another embodiment, the invention provides a method of delivering compositions containing the polypeptides of the invention (e.g., compositions containing polypeptides or polypeptide antibodies associated with heterologous

polypeptides, heterologous nucleic acids, toxins, or prodrugs) to targeted cells expressing the polypeptide of the present invention. Polypeptides or polypeptide antibodies of the invention may be associated with heterologous polypeptides, heterologous nucleic acids, toxins, or prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions. Polypeptides, protein fusions to, or fragments thereof, of the present invention are useful in enhancing the immunogenicity and/or antigenicity of proliferating cells or tissues, either directly, such as would occur if the polypeptides of the present invention 'vaccinated' the immune response to respond to proliferative antigens and immunogens, or indirectly, such as in activating the expression of proteins known to enhance the immune response (e.g. chemokines), to said antigens and immunogens.

### **Cardiovascular Disorders**

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, may be used to treat cardiovascular disorders, including peripheral artery disease, such as limb ischemia.

Cardiovascular disorders include cardiovascular abnormalities, such as arterio-arterial fistula, arteriovenous fistula, cerebral arteriovenous malformations, congenital heart defects, pulmonary atresia, and Scimitar Syndrome. Congenital heart defects include aortic coarctation, cor triatriatum, coronary vessel anomalies, crisscross heart, dextrocardia, patent ductus arteriosus, Ebstein's anomaly, Eisenmenger complex, hypoplastic left heart syndrome, levocardia, tetralogy of fallot, transposition of great vessels, double outlet right ventricle, tricuspid atresia, persistent truncus arteriosus, and heart septal defects, such as aortopulmonary septal defect, endocardial cushion defects, Lutembacher's Syndrome, trilogly of Fallot, ventricular heart septal defects.

Cardiovascular disorders also include heart disease, such as arrhythmias, carcinoid heart disease, high cardiac output, low cardiac output, cardiac tamponade, endocarditis (including bacterial), heart aneurysm, cardiac arrest, congestive heart failure, congestive cardiomyopathy, paroxysmal dyspnea, cardiac edema, heart hypertrophy, congestive cardiomyopathy, left ventricular hypertrophy, right

ventricular hypertrophy, post-infarction heart rupture, ventricular septal rupture, heart valve diseases, myocardial diseases, myocardial ischemia, pericardial effusion, pericarditis (including constrictive and tuberculous), pneumopericardium, postpericardiotomy syndrome, pulmonary heart disease, rheumatic heart disease, ventricular dysfunction, hyperemia, cardiovascular pregnancy complications, Scimitar Syndrome, cardiovascular syphilis, and cardiovascular tuberculosis.

Arrhythmias include sinus arrhythmia, atrial fibrillation, atrial flutter, bradycardia, extrasystole, Adams-Stokes Syndrome, bundle-branch block, sinoatrial block, long QT syndrome, parasystole, Lown-Ganong-Levine Syndrome, Mahaim-type pre-excitation syndrome, Wolff-Parkinson-White syndrome, sick sinus syndrome, tachycardias, and ventricular fibrillation. Tachycardias include paroxysmal tachycardia, supraventricular tachycardia, accelerated idioventricular rhythm, atrioventricular nodal reentry tachycardia, ectopic atrial tachycardia, ectopic junctional tachycardia, sinoatrial nodal reentry tachycardia, sinus tachycardia, Torsades de Pointes, and ventricular tachycardia.

Heart valve disease include aortic valve insufficiency, aortic valve stenosis, hear murmurs, aortic valve prolapse, mitral valve prolapse, tricuspid valve prolapse, mitral valve insufficiency, mitral valve stenosis, pulmonary atresia, pulmonary valve insufficiency, pulmonary valve stenosis, tricuspid atresia, tricuspid valve insufficiency, and tricuspid valve stenosis.

Myocardial diseases include alcoholic cardiomyopathy, congestive cardiomyopathy, hypertrophic cardiomyopathy, aortic subvalvular stenosis, pulmonary subvalvular stenosis, restrictive cardiomyopathy, Chagas cardiomyopathy, endocardial fibroelastosis, endomyocardial fibrosis, Kearns Syndrome, myocardial reperfusion injury, and myocarditis.

Myocardial ischemias include coronary disease, such as angina pectoris, coronary aneurysm, coronary arteriosclerosis, coronary thrombosis, coronary vasospasm, myocardial infarction and myocardial stunning.

Cardiovascular diseases also include vascular diseases such as aneurysms, angiodyplasia, angiomatosis, bacillary angiomatosis, Hippel-Lindau Disease.

Klippel-Trenaunay-Weber Syndrome. Sturge-Weber Syndrome, angioneurotic edema, aortic diseases, Takayasu's Arteritis, aortitis, Leriche's Syndrome, arterial occlusive diseases, arteritis, enarteritis, polyarteritis nodosa, cerebrovascular disorders, diabetic angiopathies, diabetic retinopathy, embolisms, thrombosis, erythromelalgia, hemorrhoids, hepatic veno-occlusive disease, hypertension, hypotension, ischemia, peripheral vascular diseases, phlebitis, pulmonary veno-occlusive disease, Raynaud's disease, CREST syndrome, retinal vein occlusion, Scimitar syndrome, superior vena cava syndrome, telangiectasia, atacia telangiectasia, hereditary hemorrhagic telangiectasia, varicocele, varicose veins, varicose ulcer, vasculitis, and venous insufficiency.

Aneurysms include dissecting aneurysms, false aneurysms, infected aneurysms, ruptured aneurysms, aortic aneurysms, cerebral aneurysms, coronary aneurysms, heart aneurysms, and iliac aneurysms.

Arterial occlusive diseases include arteriosclerosis, intermittent claudication, carotid stenosis, fibromuscular dysplasias, mesenteric vascular occlusion, Moyamoya disease, renal artery obstruction, retinal artery occlusion, and thromboangiitis obliterans.

Cerebrovascular disorders include carotid artery diseases, cerebral amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformation, cerebral artery diseases, cerebral embolism and thrombosis, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome, cerebral hemorrhage, epidural hematoma, subdural hematoma, subarachnoid hemorrhage, cerebral infarction, cerebral ischemia (including transient), subclavian steal syndrome, periventricular leukomalacia, vascular headache, cluster headache, migraine, and vertebrobasilar insufficiency.

Embolisms include air embolisms, amniotic fluid embolisms, cholesterol embolisms, blue toe syndrome, fat embolisms, pulmonary embolisms, and thromboembolisms. Thrombosis include coronary thrombosis, hepatic vein thrombosis, retinal vein occlusion, carotid artery thrombosis, sinus thrombosis, Wallenberg's syndrome, and thrombophlebitis.

Ischemia includes cerebral ischemia, ischemic colitis, compartment syndromes, anterior compartment syndrome, myocardial ischemia, reperfusion injuries, and peripheral limb ischemia. Vasculitis includes aortitis, arteritis, Behcet's Syndrome, Churg-Strauss Syndrome, mucocutaneous lymph node syndrome, thromboangiitis obliterans, hypersensitivity vasculitis, Schoenlein-Henoch purpura, allergic cutaneous vasculitis, and Wegener's granulomatosis.

Polynucleotides or polypeptides, or agonists or antagonists of the present invention, are especially effective for the treatment of critical limb ischemia and coronary disease.

Polypeptides may be administered using any method known in the art, including, but not limited to, direct needle injection at the delivery site, intravenous injection, topical administration, catheter infusion, biolistic injectors, particle accelerators, gelfoam sponge depots, other commercially available depot materials, osmotic pumps, oral or suppository solid pharmaceutical formulations, decanting or topical applications during surgery, aerosol delivery. Such methods are known in the art. Polypeptides may be administered as part of a Therapeutic, described in more detail below. Methods of delivering polynucleotides are described in more detail herein.

#### **Anti-Angiogenesis Activity**

The naturally occurring balance between endogenous stimulators and inhibitors of angiogenesis is one in which inhibitory influences predominate. Rastinejad *et al.*, *Cell* 56:345-355 (1989). In those rare instances in which neovascularization occurs under normal physiological conditions, such as wound healing, organ regeneration, embryonic development, and female reproductive processes, angiogenesis is stringently regulated and spatially and temporally delimited. Under conditions of pathological angiogenesis such as that characterizing solid tumor growth, these regulatory controls fail. Unregulated angiogenesis becomes pathologic and sustains progression of many neoplastic and non-neoplastic diseases. A number of serious diseases are dominated by abnormal neovascularization

including solid tumor growth and metastases, arthritis, some types of eye disorders, and psoriasis. See, e.g., reviews by Moses *et al.*, *Biotech.* 9:630-634 (1991); Folkman *et al.*, *N. Engl. J. Med.*, 333:1757-1763 (1995); Auerbach *et al.*, *J. Microvasc. Res.* 29:401-411 (1985); Folkman, *Advances in Cancer Research*, eds. Klein and Weinhouse, Academic Press, New York, pp. 175-203 (1985); Patz, *Am. J. Ophthalmol.* 94:715-743 (1982); and Folkman *et al.*, *Science* 221:719-725 (1983). In a number of pathological conditions, the process of angiogenesis contributes to the disease state. For example, significant data have accumulated which suggest that the growth of solid tumors is dependent on angiogenesis. Folkman and Klagsbrun, *Science* 235:442-447 (1987).

The polynucleotides encoding a polypeptide of the present invention may be administered along with other polynucleotides encoding an angiogenic protein. Examples of angiogenic proteins include, but are not limited to, acidic and basic fibroblast growth factors, VEGF-1, VEGF-2, VEGF-3, epidermal growth factor alpha and beta, platelet-derived endothelial cell growth factor, platelet-derived growth factor, tumor necrosis factor alpha, hepatocyte growth factor, insulin like growth factor, colony stimulating factor, macrophage colony stimulating factor, granulocyte/macrophage colony stimulating factor, and nitric oxide synthase.

The present invention provides for treatment of diseases or disorders associated with neovascularization by administration of the polynucleotides and/or polypeptides of the invention, as well as agonists or antagonists of the present invention. Malignant and metastatic conditions which can be treated with the polynucleotides and polypeptides, or agonists or antagonists of the invention include, but are not limited to, malignancies, solid tumors, and cancers described herein and otherwise known in the art (for a review of such disorders, see Fishman *et al.*, *Medicine*, 2d Ed., J. B. Lippincott Co., Philadelphia (1985)). Thus, the present invention provides a method of treating an angiogenesis-related disease and/or disorder, comprising administering to an individual in need thereof a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist of the invention. For example, polynucleotides, polypeptides, antagonists and/or agonists

may be utilized in a variety of additional methods in order to therapeutically treat a cancer or tumor. Cancers which may be treated with polynucleotides, polypeptides, antagonists and/or agonists include, but are not limited to solid tumors, including prostate, lung, breast, ovarian, stomach, pancreas, larynx, esophagus, testes, liver, parotid, biliary tract, colon, rectum, cervix, uterus, endometrium, kidney, bladder, thyroid cancer; primary tumors and metastases; melanomas; glioblastoma; Kaposi's sarcoma; leiomyosarcoma; non-small cell lung cancer; colorectal cancer; advanced malignancies; and blood born tumors such as leukemias. For example, polynucleotides, polypeptides, antagonists and/or agonists may be delivered topically, in order to treat cancers such as skin cancer, head and neck tumors, breast tumors, and Kaposi's sarcoma.

Within yet other aspects, polynucleotides, polypeptides, antagonists and/or agonists may be utilized to treat superficial forms of bladder cancer by, for example, intravesical administration. Polynucleotides, polypeptides, antagonists and/or agonists may be delivered directly into the tumor, or near the tumor site, via injection or a catheter. Of course, as the artisan of ordinary skill will appreciate, the appropriate mode of administration will vary according to the cancer to be treated. Other modes of delivery are discussed herein.

Polynucleotides, polypeptides, antagonists and/or agonists may be useful in treating other disorders, besides cancers, which involve angiogenesis. These disorders include, but are not limited to: benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye; rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization;



telangiectasia; hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis.

For example, within one aspect of the present invention methods are provided for treating hypertrophic scars and keloids, comprising the step of administering a polynucleotide, polypeptide, antagonist and/or agonist of the invention to a hypertrophic scar or keloid.

Within one embodiment of the present invention polynucleotides, polypeptides, antagonists and/or agonists are directly injected into a hypertrophic scar or keloid, in order to prevent the progression of these lesions. This therapy is of particular value in the prophylactic treatment of conditions which are known to result in the development of hypertrophic scars and keloids (e.g., burns), and is preferably initiated after the proliferative phase has had time to progress (approximately 14 days after the initial injury), but before hypertrophic scar or keloid development. As noted above, the present invention also provides methods for treating neovascular diseases of the eye, including for example, corneal neovascularization, neovascular glaucoma, proliferative diabetic retinopathy, retrolental fibroplasia and macular degeneration.

Moreover, Ocular disorders associated with neovascularization which can be treated with the polynucleotides and polypeptides of the present invention (including agonists and/or antagonists) include, but are not limited to: neovascular glaucoma, diabetic retinopathy, retinoblastoma, retrolental fibroplasia, uveitis, retinopathy of prematurity macular degeneration, corneal graft neovascularization, as well as other eye inflammatory diseases, ocular tumors and diseases associated with choroidal or iris neovascularization. See, e.g., reviews by Waltman *et al.*, *Am. J. Ophthalm.* 85:704-710 (1978) and Gartner *et al.*, *Surv. Ophthalm.* 22:291-312 (1978).

Thus, within one aspect of the present invention methods are provided for treating neovascular diseases of the eye such as corneal neovascularization (including corneal graft neovascularization), comprising the step of administering to a patient a therapeutically effective amount of a compound (as described above) to the cornea, such that the formation of blood vessels is inhibited. Briefly, the cornea is a tissue which normally lacks blood vessels. In certain pathological conditions however.

capillaries may extend into the cornea from the pericorneal vascular plexus of the limbus. When the cornea becomes vascularized, it also becomes clouded, resulting in a decline in the patient's visual acuity. Visual loss may become complete if the cornea completely opacitates. A wide variety of disorders can result in corneal neovascularization, including for example, corneal infections (e.g., trachoma, herpes simplex keratitis, leishmaniasis and onchocerciasis), immunological processes (e.g., graft rejection and Stevens-Johnson's syndrome), alkali burns, trauma, inflammation (of any cause), toxic and nutritional deficiency states, and as a complication of wearing contact lenses.

Within particularly preferred embodiments of the invention, may be prepared for topical administration in saline (combined with any of the preservatives and antimicrobial agents commonly used in ocular preparations), and administered in eyedrop form. The solution or suspension may be prepared in its pure form and administered several times daily. Alternatively, anti-angiogenic compositions, prepared as described above, may also be administered directly to the cornea. Within preferred embodiments, the anti-angiogenic composition is prepared with a muco-adhesive polymer which binds to cornea. Within further embodiments, the anti-angiogenic factors or anti-angiogenic compositions may be utilized as an adjunct to conventional steroid therapy. Topical therapy may also be useful prophylactically in corneal lesions which are known to have a high probability of inducing an angiogenic response (such as chemical burns). In these instances the treatment, likely in combination with steroids, may be instituted immediately to help prevent subsequent complications.

Within other embodiments, the compounds described above may be injected directly into the corneal stroma by an ophthalmologist under microscopic guidance. The preferred site of injection may vary with the morphology of the individual lesion, but the goal of the administration would be to place the composition at the advancing front of the vasculature (i.e., interspersed between the blood vessels and the normal cornea). In most cases this would involve perilimbic corneal injection to "protect" the cornea from the advancing blood vessels. This method may also be utilized shortly

after a corneal insult in order to prophylactically prevent corneal neovascularization. In this situation the material could be injected in the perilimbic cornea interspersed between the corneal lesion and its undesired potential limbic blood supply. Such methods may also be utilized in a similar fashion to prevent capillary invasion of transplanted corneas. In a sustained-release form injections might only be required 2-3 times per year. A steroid could also be added to the injection solution to reduce inflammation resulting from the injection itself.

Within another aspect of the present invention, methods are provided for treating neovascular glaucoma, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. In one embodiment, the compound may be administered topically to the eye in order to treat early forms of neovascular glaucoma. Within other embodiments, the compound may be implanted by injection into the region of the anterior chamber angle. Within other embodiments, the compound may also be placed in any location such that the compound is continuously released into the aqueous humor. Within another aspect of the present invention, methods are provided for treating proliferative diabetic retinopathy, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eyes, such that the formation of blood vessels is inhibited.

Within particularly preferred embodiments of the invention, proliferative diabetic retinopathy may be treated by injection into the aqueous humor or the vitreous, in order to increase the local concentration of the polynucleotide, polypeptide, antagonist and/or agonist in the retina. Preferably, this treatment should be initiated prior to the acquisition of severe disease requiring photocoagulation.

Within another aspect of the present invention, methods are provided for treating retrolental fibroplasia, comprising the step of administering to a patient a therapeutically effective amount of a polynucleotide, polypeptide, antagonist and/or agonist to the eye, such that the formation of blood vessels is inhibited. The

compound may be administered topically, via intravitreal injection and/or via intraocular implants.

Additionally, disorders which can be treated with the polynucleotides, polypeptides, agonists and/or antagonists include, but are not limited to, hemangioma, arthritis, psoriasis, angiofibroma, atherosclerotic plaques, delayed wound healing, 5 granulations, hemophilic joints, hypertrophic scars, nonunion fractures, Osler-Weber syndrome, pyogenic granuloma, scleroderma, trachoma, and vascular adhesions.

Moreover, disorders and/or states, which can be treated with the polynucleotides, polypeptides, agonists and/or antagonists include, but are not limited to, solid tumors, blood born tumors such as leukemias, tumor metastasis, 10 Kaposi's sarcoma, benign tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas, rheumatoid arthritis, psoriasis, ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, 15 retrolental fibroplasia, rubeosis, retinoblastoma, and uveitis, delayed wound healing, endometriosis, vasculogenesis, granulations, hypertrophic scars (keloids), nonunion fractures, scleroderma, trachoma, vascular adhesions, myocardial angiogenesis, coronary collaterals, cerebral collaterals, arteriovenous malformations, ischemic limb angiogenesis, Osler-Webber Syndrome, plaque neovascularization, telangiectasia, 20 hemophilic joints, angiofibroma fibromuscular dysplasia, wound granulation, Crohn's disease, atherosclerosis, birth control agent by preventing vascularization required for embryo implantation controlling menstruation, diseases that have angiogenesis as a pathologic consequence such as cat scratch disease (*Rochelie minalia quintosa*), ulcers (*Helicobacter pylori*), Bartonellosis and bacillary 25 angiomatosis.

In one aspect of the birth control method, an amount of the compound sufficient to block embryo implantation is administered before or after intercourse and fertilization have occurred, thus providing an effective method of birth control, possibly a "morning after" method. Polynucleotides, polypeptides, agonists and/or 30 antagonists may also be used in controlling menstruation or administered as either a

peritoneal lavage fluid or for peritoneal implantation in the treatment of endometriosis.

Polynucleotides, polypeptides, agonists and/or agonists of the present invention may be incorporated into surgical sutures in order to prevent stitch  
5 granulomas.

Polynucleotides, polypeptides, agonists and/or agonists may be utilized in a wide variety of surgical procedures. For example, within one aspect of the present invention a compositions (in the form of, for example, a spray or film) may be utilized to coat or spray an area prior to removal of a tumor, in order to isolate normal  
10 surrounding tissues from malignant tissue, and/or to prevent the spread of disease to surrounding tissues. Within other aspects of the present invention, compositions (e.g., in the form of a spray) may be delivered via endoscopic procedures in order to coat tumors, or inhibit angiogenesis in a desired locale. Within yet other aspects of the present invention, surgical meshes which have been coated with anti- angiogenic  
15 compositions of the present invention may be utilized in any procedure wherein a surgical mesh might be utilized. For example, within one embodiment of the invention a surgical mesh laden with an anti-angiogenic composition may be utilized during abdominal cancer resection surgery (e.g., subsequent to colon resection) in order to provide support to the structure, and to release an amount of the anti-  
20 angiogenic factor.

Within further aspects of the present invention, methods are provided for treating tumor excision sites, comprising administering a polynucleotide, polypeptide, agonist and/or agonist to the resection margins of a tumor subsequent to excision, such that the local recurrence of cancer and the formation of new blood vessels at the  
25 site is inhibited. Within one embodiment of the invention, the anti-angiogenic compound is administered directly to the tumor excision site (e.g., applied by swabbing, brushing or otherwise coating the resection margins of the tumor with the anti-angiogenic compound). Alternatively, the anti-angiogenic compounds may be incorporated into known surgical pastes prior to administration. Within particularly

preferred embodiments of the invention, the anti-angiogenic compounds are applied after hepatic resections for malignancy, and after neurosurgical operations.

Within one aspect of the present invention, polynucleotides, polypeptides, agonists and/or agonists may be administered to the resection margin of a wide variety of tumors, including for example, breast, colon, brain and hepatic tumors. For example, within one embodiment of the invention, anti-angiogenic compounds may be administered to the site of a neurological tumor subsequent to excision, such that the formation of new blood vessels at the site are inhibited.

The polynucleotides, polypeptides, agonists and/or agonists of the present invention may also be administered along with other anti-angiogenic factors. Representative examples of other anti-angiogenic factors include: Anti-Invasive Factor, retinoic acid and derivatives thereof, paclitaxel, Suramin, Tissue Inhibitor of Metalloproteinase-1, Tissue Inhibitor of Metalloproteinase-2, Plasminogen Activator Inhibitor-1, Plasminogen Activator Inhibitor-2, and various forms of the lighter "d group" transition metals.

Lighter "d group" transition metals include, for example, vanadium, molybdenum, tungsten, titanium, niobium, and tantalum species. Such transition metal species may form transition metal complexes. Suitable complexes of the above-mentioned transition metal species include oxo transition metal complexes.

Representative examples of vanadium complexes include oxo vanadium complexes such as vanadate and vanadyl complexes. Suitable vanadate complexes include metavanadate and orthovanadate complexes such as, for example, ammonium metavanadate, sodium metavanadate, and sodium orthovanadate. Suitable vanadyl complexes include, for example, vanadyl acetylacetonate and vanadyl sulfate including vanadyl sulfate hydrates such as vanadyl sulfate mono- and trihydrates.

Representative examples of tungsten and molybdenum complexes also include oxo complexes. Suitable oxo tungsten complexes include tungstate and tungsten oxide complexes. Suitable tungstate complexes include ammonium tungstate, calcium tungstate, sodium tungstate dihydrate, and tungstic acid. Suitable tungsten oxides include tungsten (IV) oxide and tungsten (VI) oxide. Suitable oxo

molybdenum complexes include molybdate, molybdenum oxide, and molybdenyl complexes. Suitable molybdate complexes include ammonium molybdate and its hydrates, sodium molybdate and its hydrates, and potassium molybdate and its hydrates. Suitable molybdenum oxides include molybdenum (VI) oxide, molybdenum (VI) oxide, and molybdic acid. Suitable molybdenyl complexes include, for example, molybdenyl acetylacetonate. Other suitable tungsten and molybdenum complexes include hydroxo derivatives derived from, for example, glycerol, tartaric acid, and sugars.

A wide variety of other anti-angiogenic factors may also be utilized within the context of the present invention. Representative examples include platelet factor 4; protamine sulphate; sulphated chitin derivatives (prepared from queen crab shells), (Murata et al., Cancer Res. 51:22-26, 1991); Sulphated Polysaccharide Peptidoglycan Complex (SP- PG) (the function of this compound may be enhanced by the presence of steroids such as estrogen, and tamoxifen citrate); Staurosporine; modulators of matrix metabolism, including for example, proline analogs, cishydroxyproline, d,L-3,4-dehydroproline, Thiaproline, alpha,alpha-dipyridyl, aminopropionitrile fumarate; 4-propyl-5-(4-pyridinyl)-2(3H)-oxazolone; Methotrexate; Mitoxantrone; Heparin; Interferons; 2 Macroglobulin-serum; ChIMP-3 (Pavloff et al., J. Bio. Chem. 267:17321-17326, 1992); Chymostatin (Tomkinson et al., Biochem J. 286:475-480, 1992); Cyclodextrin Tetradecasulfate; Eponemycin; Camptothecin; Fumagillin (Ingber et al., Nature 348:555-557, 1990); Gold Sodium Thiomalate ("GST"; Matsubara and Ziff, J. Clin. Invest. 79:1440-1446, 1987); anticollagenase-serum; alpha2-antiplasmin (Holmes et al., J. Biol. Chem. 262(4):1659-1664, 1987); Bisantrone (National Cancer Institute); Lobenzarit disodium (N-(2)-carboxyphenyl-4-chloroanthronilic acid disodium or "CCA"; Takeuchi et al., Agents Actions 36:312-316, 1992); Thalidomide; Angostatic steroid; AGM-1470; carboxynaminolmidazole; and metalloproteinase inhibitors such as BB94.

**Diseases at the Cellular Level**

Diseases associated with increased cell survival or the inhibition of apoptosis that could be treated or detected by polynucleotides or polypeptides, as well as antagonists or agonists of the present invention, include cancers (such as follicular lymphomas, carcinomas with p53 mutations, and hormone-dependent tumors, including, but not limited to colon cancer, cardiac tumors, pancreatic cancer, melanoma, retinoblastoma, glioblastoma, lung cancer, intestinal cancer, testicular cancer, stomach cancer, neuroblastoma, myxoma, myoma, lymphoma, endothelioma, osteoblastoma, osteoclastoma, osteosarcoma, chondrosarcoma, adenoma, breast cancer, prostate cancer, Kaposi's sarcoma and ovarian cancer); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) and viral infections (such as herpes viruses, pox viruses and adenoviruses), inflammation, graft v. host disease, acute graft rejection, and chronic graft rejection. In preferred embodiments, polynucleotides, polypeptides, and/or antagonists of the invention are used to inhibit growth, progression, and/or metasis of cancers, in particular those listed above.

Additional diseases or conditions associated with increased cell survival that could be treated or detected by polynucleotides or polypeptides, or agonists or antagonists of the present invention include, but are not limited to, progression, and/or metastases of malignancies and related disorders such as leukemia (including acute leukemias (e.g., acute lymphocytic leukemia, acute myelocytic leukemia (including myeloblastic, promyelocytic, myelomonocytic, monocytic, and erythroleukemia)) and chronic leukemias (e.g., chronic myelocytic (granulocytic) leukemia and chronic lymphocytic leukemia)), polycythemia vera, lymphomas (e.g., Hodgkin's disease and non-Hodgkin's disease), multiple myeloma, Waldenstrom's macroglobulinemia, heavy chain disease, and solid tumors including, but not limited to, sarcomas and carcinomas such as fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma,



lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, papillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilm's tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, menangioma, melanoma, neuroblastoma, and retinoblastoma.

Diseases associated with increased apoptosis that could be treated or detected by polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, include AIDS; neurodegenerative disorders (such as Alzheimer's disease, Parkinson's disease, Amyotrophic lateral sclerosis, Retinitis pigmentosa, Cerebellar degeneration and brain tumor or prior associated disease); autoimmune disorders (such as, multiple sclerosis, Sjogren's syndrome, Hashimoto's thyroiditis, biliary cirrhosis, Behcet's disease, Crohn's disease, polymyositis, systemic lupus erythematosus and immune-related glomerulonephritis and rheumatoid arthritis) myelodysplastic syndromes (such as aplastic anemia), graft v. host disease, ischemic injury (such as that caused by myocardial infarction, stroke and reperfusion injury), liver injury (e.g., hepatitis related liver injury, ischemia/reperfusion injury, cholestosis (bile duct injury) and liver cancer); toxin-induced liver disease (such as that caused by alcohol), septic shock, cachexia and anorexia.

### **Wound Healing and Epithelial Cell Proliferation**

In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to stimulate epithelial cell proliferation and basal keratinocytes for the purpose of wound

healing, and to stimulate hair follicle production and healing of dermal wounds. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may be clinically useful in stimulating wound healing including surgical wounds, excisional wounds, deep wounds involving damage of the dermis and epidermis, eye tissue wounds, dental tissue wounds, oral cavity wounds, diabetic ulcers, dermal ulcers, cubitus ulcers, arterial ulcers, venous stasis ulcers, burns resulting from heat exposure or chemicals, and other abnormal wound healing conditions such as uremia, malnutrition, vitamin deficiencies and complications associated with systemic treatment with steroids, radiation therapy and antineoplastic drugs and antimetabolites. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote dermal reestablishment subsequent to dermal loss

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to increase the adherence of skin grafts to a wound bed and to stimulate re-epithelialization from the wound bed. The following are types of grafts that polynucleotides or polypeptides, agonists or antagonists of the present invention, could be used to increase adherence to a wound bed: autografts, artificial skin, allografts, autodermic graft, autoepdermic grafts, avacular grafts, Blair-Brown grafts, bone graft, brephoplastic grafts, cutis graft, delayed graft, dermic graft, epidermic graft, fascia graft, full thickness graft, heterologous graft, xenograft, homologous graft, hyperplastic graft, lamellar graft, mesh graft, mucosal graft, Ollier-Thiersch graft, omenpal graft, patch graft, pedicle graft, penetrating graft, split skin graft, thick split graft. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, can be used to promote skin strength and to improve the appearance of aged skin.

It is believed that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, will also produce changes in hepatocyte proliferation, and epithelial cell proliferation in the lung, breast, pancreas, stomach, small intestine, and large intestine. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could promote proliferation of

epithelial cells such as sebocytes, hair follicles, hepatocytes, type II pneumocytes, mucin-producing goblet cells, and other epithelial cells and their progenitors contained within the skin, lung, liver, and gastrointestinal tract. Polynucleotides or polypeptides, agonists or antagonists of the present invention, may promote proliferation of endothelial cells, keratinocytes, and basal keratinocytes.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to reduce the side effects of gut toxicity that result from radiation, chemotherapy treatments or viral infections. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may have a cytoprotective effect on the small intestine mucosa. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may also stimulate healing of mucositis (mouth ulcers) that result from chemotherapy and viral infections.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could further be used in full regeneration of skin in full and partial thickness skin defects, including burns, (i.e., repopulation of hair follicles, sweat glands, and sebaceous glands), treatment of other skin defects such as psoriasis. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat epidermolysis bullosa, a defect in adherence of the epidermis to the underlying dermis which results in frequent, open and painful blisters by accelerating reepithelialization of these lesions. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could also be used to treat gastric and duodenal ulcers and help heal by scar formation of the mucosal lining and regeneration of glandular mucosa and duodenal mucosal lining more rapidly. Inflammatory bowel diseases, such as Crohn's disease and ulcerative colitis, are diseases which result in destruction of the mucosal surface of the small or large intestine, respectively. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to promote the resurfacing of the mucosal surface to aid more rapid healing and to prevent progression of inflammatory bowel disease. Treatment with polynucleotides or polypeptides, agonists or antagonists of the present invention, is expected to have a significant effect on the

production of mucus throughout the gastrointestinal tract and could be used to protect the intestinal mucosa from injurious substances that are ingested or following surgery. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to treat diseases associate with the under expression.

5           Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to prevent and heal damage to the lungs due to various pathological states. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, which could stimulate proliferation and differentiation and promote the repair of alveoli and bronchiolar epithelium to prevent  
10 or treat acute or chronic lung damage. For example, emphysema, which results in the progressive loss of aveoli, and inhalation injuries, i.e., resulting from smoke inhalation and burns, that cause necrosis of the bronchiolar epithelium and alveoli could be effectively treated using polynucleotides or polypeptides, agonists or antagonists of the present invention. Also, polynucleotides or polypeptides, as well as  
15 agonists or antagonists of the present invention, could be used to stimulate the proliferation of and differentiation of type II pneumocytes, which may help treat or prevent disease such as hyaline membrane diseases, such as infant respiratory distress syndrome and bronchopulmonary displasia, in premature infants.

          Polynucleotides or polypeptides, as well as agonists or antagonists of the  
20 present invention, could stimulate the proliferation and differentiation of hepatocytes and, thus, could be used to alleviate or treat liver diseases and pathologies such as fulminant liver failure caused by cirrhosis, liver damage caused by viral hepatitis and toxic substances (i.e., acetaminophen, carbon tetraholoride and other hepatotoxins known in the art).

25           In addition, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used treat or prevent the onset of diabetes mellitus. In patients with newly diagnosed Types I and II diabetes, where some islet cell function remains, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, could be used to maintain the islet function so as to alleviate,  
30 delay or prevent permanent manifestation of the disease. Also. polynucleotides or

polypeptides, as well as agonists or antagonists of the present invention, could be used as an auxiliary in islet cell transplantation to improve or promote islet cell function.

## 5 Neurological Diseases

In accordance with yet a further aspect of the present invention, there is provided a process for utilizing polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, for therapeutic purposes, for example, to  
10 stimulate neurological cell proliferation and/or differentiation. Therefore, polynucleotides, polypeptides, agonists and/or antagonists of the invention may be used to treat and/or detect neurologic diseases. Moreover, polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used as a marker or detector of a particular nervous system disease or disorder.

15 Examples of neurologic diseases which can be treated or detected with polynucleotides, polypeptides, agonists, and/or antagonists of the present invention include brain diseases, such as metabolic brain diseases which includes phenylketonuria such as maternal phenylketonuria, pyruvate carboxylase deficiency, pyruvate dehydrogenase complex deficiency, Wernicke's Encephalopathy, brain  
20 edema, brain neoplasms such as cerebellar neoplasms which include infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms, supratentorial neoplasms, canavan disease, cerebellar diseases such as cerebellar ataxia which include spinocerebellar degeneration such as ataxia telangiectasia, cerebellar dyssynergia, Friederich's Ataxia, Machado-Joseph  
25 Disease, olivopontocerebellar atrophy, cerebellar neoplasms such as infratentorial neoplasms, diffuse cerebral sclerosis such as encephalitis periaxialis, globoid cell leukodystrophy, metachromatic leukodystrophy and subacute sclerosing panencephalitis, cerebrovascular disorders (such as carotid artery diseases which include carotid artery thrombosis, carotid stenosis and Moyamoya Disease, cerebral  
30 amyloid angiopathy, cerebral aneurysm, cerebral anoxia, cerebral arteriosclerosis, cerebral arteriovenous malformations, cerebral artery diseases, cerebral embolism and

thrombosis such as carotid artery thrombosis, sinus thrombosis and Wallenberg's Syndrome, cerebral hemorrhage such as epidural hematoma, subdural hematoma and subarachnoid hemorrhage, cerebral infarction, cerebral ischemia such as transient cerebral ischemia, Subclavian Steal Syndrome and vertebrobasilar insufficiency, 5 vascular dementia such as multi-infarct dementia, periventricular leukomalacia, vascular headache such as cluster headache, migraine, dementia such as AIDS Dementia Complex, presenile dementia such as Alzheimer's Disease and Creutzfeldt-Jakob Syndrome, senile dementia such as Alzheimer's Disease and progressive supranuclear palsy, vascular dementia such as multi-infarct dementia, encephalitis 10 which include encephalitis periaxialis, viral encephalitis such as epidemic encephalitis, Japanese Encephalitis, St. Louis Encephalitis, tick-borne encephalitis and West Nile Fever, acute disseminated encephalomyelitis, meningoencephalitis such as uveomeningoencephalitic syndrome, Postencephalitic Parkinson Disease and subacute sclerosing panencephalitis, encephalomalacia such as periventricular 15 leukomalacia, epilepsy such as generalized epilepsy which includes infantile spasms, absence epilepsy, myoclonic epilepsy which includes MERRF Syndrome, tonic-clonic epilepsy, partial epilepsy such as complex partial epilepsy, frontal lobe epilepsy and temporal lobe epilepsy, post-traumatic epilepsy, status epilepticus such as Epilepsia Partialis Continua, Hallervorden-Spatz Syndrome, hydrocephalus such as 20 Dandy-Walker Syndrome and normal pressure hydrocephalus, hypothalamic diseases such as hypothalamic neoplasms, cerebral malaria, narcolepsy which includes cataplexy, bulbar poliomyelitis, cerebri pseudotumor, Rett Syndrome, Reye's Syndrome, thalamic diseases, cerebral toxoplasmosis, intracranial tuberculoma and Zellweger Syndrome, central nervous system infections such as AIDS Dementia 25 Complex, Brain Abscess, subdural empyema, encephalomyelitis such as Equine Encephalomyelitis, Venezuelan Equine Encephalomyelitis, Necrotizing Hemorrhagic Encephalomyelitis, Visna, cerebral malaria, meningitis such as arachnoiditis, aseptic meningitis such as viral meningitis which includes lymphocytic choriomeningitis. Bacterial meningitis which includes Haemophilus Meningitis, Listeria Meningitis, 30 Meningococcal Meningitis such as Waterhouse-Friderichsen Syndrome,

Pneumococcal Meningitis and meningeal tuberculosis, fungal meningitis such as Cryptococcal Meningitis, subdural effusion, meningoencephalitis such as uvemeningoencephalitic syndrome, myelitis such as transverse myelitis, neurosyphilis such as tabes dorsalis, poliomyelitis which includes bulbar poliomyelitis and postpoliomyelitis syndrome, prion diseases (such as Creutzfeldt-Jakob Syndrome, Bovine Spongiform Encephalopathy, Gerstmann-Straussler Syndrome, Kuru, Scrapie) cerebral toxoplasmosis, central nervous system neoplasms such as brain neoplasms that include cerebellar neoplasms such as infratentorial neoplasms, cerebral ventricle neoplasms such as choroid plexus neoplasms, hypothalamic neoplasms and supratentorial neoplasms, meningeal neoplasms, spinal cord neoplasms which include epidural neoplasms, demyelinating diseases such as Canavan Diseases, diffuse cerebral scleritis which includes adrenoleukodystrophy, encephalitis periaxialis, globoid cell leukodystrophy, diffuse cerebral sclerosis such as metachromatic leukodystrophy, allergic encephalomyelitis, necrotizing hemorrhagic encephalomyelitis, progressive multifocal leukoencephalopathy, multiple sclerosis, central pontine myelinolysis, transverse myelitis, neuromyelitis optica, Scrapie, Swayback, Chronic Fatigue Syndrome, Visna, High Pressure Nervous Syndrome, Meningism, spinal cord diseases such as amyotonia congenita, amyotrophic lateral sclerosis, spinal muscular atrophy such as Werdnig-Hoffmann Disease, spinal cord compression, spinal cord neoplasms such as epidural neoplasms, syringomyelia, Tabes Dorsalis, Stiff-Man Syndrome, mental retardation such as Angelman Syndrome, Cri-du-Chat Syndrome, De Lange's Syndrome, Down Syndrome, Gangliosidoses such as gangliosidoses G(M1), Sandhoff Disease, Tay-Sachs Disease, Hartnup Disease, homocystinuria, Laurence-Moon- Biedl Syndrome, Lesch-Nyhan Syndrome, Maple Syrup Urine Disease, mucopolipidosis such as fucosidosis. neuronal ceroid-lipofuscinosis, oculocerebrorenal syndrome, phenylketonuria such as maternal phenylketonuria, Prader-Willi Syndrome, Rett Syndrome, Rubinstein-Taybi Syndrome, Tuberous Sclerosis, WAGR Syndrome, nervous system abnormalities such as holoprosencephaly, neural tube defects such as anencephaly which includes hydrangencephaly, Arnold-Chairi Deformity. encephalocele. meningocele.

meningomyelocele, spinal dysraphism such as spina bifida cystica and spina bifida occulta, hereditary motor and sensory neuropathies which include Charcot-Marie Disease, Hereditary optic atrophy, Refsum's Disease, hereditary spastic paraplegia, Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies such

5 as Congenital Analgesia and Familial Dysautonomia, Neurologic manifestations (such as agnosia that include Gerstmann's Syndrome, Amnesia such as retrograde amnesia, apraxia, neurogenic bladder, cataplexy, communicative disorders such as hearing disorders that includes deafness, partial hearing loss, loudness recruitment and tinnitus, language disorders such as aphasia which include agraphia, anomia,

10 broca aphasia, and Wernicke Aphasia, Dyslexia such as Acquired Dyslexia, language development disorders, speech disorders such as aphasia which includes anomia, broca aphasia and Wernicke Aphasia, articulation disorders, communicative disorders such as speech disorders which include dysarthria, echolalia, mutism and stuttering, voice disorders such as aphonia and hoarseness, decerebrate state, delirium,

15 fasciculation, hallucinations, meningism, movement disorders such as angelman syndrome, ataxia, athetosis, chorea, dystonia, hypokinesia, muscle hypotonia, myoclonus, tic, torticollis and tremor, muscle hypertonia such as muscle rigidity such as stiff-man syndrome, muscle spasticity, paralysis such as facial paralysis which includes Herpes Zoster Oticus, Gastroparesis, Hemiplegia, ophthalmoplegia such as

20 diplopia, Duane's Syndrome, Horner's Syndrome, Chronic progressive external ophthalmoplegia such as Kearns Syndrome, Bulbar Paralysis, Tropical Spastic Paraparesis, Paraplegia such as Brown-Sequard Syndrome, quadriplegia, respiratory paralysis and vocal cord paralysis, paresis, phantom limb, taste disorders such as ageusia and dysgeusia, vision disorders such as amblyopia, blindness, color vision

25 defects, diplopia, hemianopsia, scotoma and subnormal vision, sleep disorders such as hypersomnia which includes Kleine-Levin Syndrome, insomnia, and somnambulism, spasm such as trismus, unconsciousness such as coma, persistent vegetative state and syncope and vertigo, neuromuscular diseases such as amyotonia congenita, amyotrophic lateral sclerosis, Lambert-Eaton Myasthenic Syndrome, motor neuron

30 disease, muscular atrophy such as spinal muscular atrophy, Charcot-Marie Disease



and Werdnig-Hoffmann Disease, Postpoliomyelitis Syndrome, Muscular Dystrophy, Myasthenia Gravis, Myotonia Atrophica, Myotonia Confenita, Nemaline Myopathy, Familial Periodic Paralysis, Multiplex Paramyoclonus, Tropical Spastic Paraparesis and Stiff-Man Syndrome, peripheral nervous system diseases such as acrodynia, amyloid neuropathies, autonomic nervous system diseases such as Adie's Syndrome, Barre-Lieou Syndrome, Familial Dysautonomia, Horner's Syndrome, Reflex Sympathetic Dystrophy and Shy-Drager Syndrome, Cranial Nerve Diseases such as Acoustic Nerve Diseases such as Acoustic Neuroma which includes Neurofibromatosis 2, Facial Nerve Diseases such as Facial Neuralgia, Melkersson-Rosenthal Syndrome, ocular motility disorders which includes amblyopia, nystagmus, oculomotor nerve paralysis, ophthalmoplegia such as Duane's Syndrome, Horner's Syndrome, Chronic Progressive External Ophthalmoplegia which includes Kearns Syndrome, Strabismus such as Esotropia and Exotropia, Oculomotor Nerve Paralysis, Optic Nerve Diseases such as Optic Atrophy which includes Hereditary Optic Atrophy, Optic Disk Drusen, Optic Neuritis such as Neuromyelitis Optica, Papilledema, Trigeminal Neuralgia, Vocal Cord Paralysis, Demyelinating Diseases such as Neuromyelitis Optica and Swayback, Diabetic neuropathies such as diabetic foot, nerve compression syndromes such as carpal tunnel syndrome, tarsal tunnel syndrome, thoracic outlet syndrome such as cervical rib syndrome, ulnar nerve compression syndrome, neuralgia such as causalgia, cervico-brachial neuralgia, facial neuralgia and trigeminal neuralgia, neuritis such as experimental allergic neuritis, optic neuritis, polyneuritis, polyradiculoneuritis and radiculities such as polyradiculitis, hereditary motor and sensory neuropathies such as Charcot-Marie Disease, Hereditary Optic Atrophy, Refsum's Disease, Hereditary Spastic Paraplegia and Werdnig-Hoffmann Disease, Hereditary Sensory and Autonomic Neuropathies which include Congenital Analgesia and Familial Dysautonomia, POEMS Syndrome, Sciatica, Gustatory Sweating and Tetany).

### **Infectious Disease**

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to treat or detect infectious agents. For example, by increasing the immune response, particularly increasing the proliferation and differentiation of B and/or T cells, infectious diseases may be treated. The immune response may be increased by either enhancing an existing immune response, or by initiating a new immune response. Alternatively, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may also directly inhibit the infectious agent, without necessarily eliciting an immune response.

Viruses are one example of an infectious agent that can cause disease or symptoms that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention. Examples of viruses, include, but are not limited to Examples of viruses, include, but are not limited to the following DNA and RNA viruses and viral families: Arbovirus, Adenoviridae, Arenaviridae, Arterivirus, Birnaviridae, Bunyaviridae, Caliciviridae, Circoviridae, Coronaviridae, Dengue, EBV, HIV, Flaviviridae, Hepadnaviridae (Hepatitis), Herpesviridae (such as, Cytomegalovirus, Herpes Simplex, Herpes Zoster), Mononegavirus (e.g., Paramyxoviridae, Morbillivirus, Rhabdoviridae), Orthomyxoviridae (e.g., Influenza A, Influenza B, and parainfluenza), Papilloma virus, Papovaviridae, Parvoviridae, Picornaviridae, Poxviridae (such as Smallpox or Vaccinia), Reoviridae (e.g., Rotavirus), Retroviridae (HTLV-I, HTLV-II, Lentivirus), and Togaviridae (e.g., Rubivirus). Viruses falling within these families can cause a variety of diseases or symptoms, including, but not limited to: arthritis, bronchiolitis, respiratory syncytial virus, encephalitis, eye infections (e.g., conjunctivitis, keratitis), chronic fatigue syndrome, hepatitis (A, B, C, E, Chronic Active, Delta), Japanese B encephalitis, Junin, Chikungunya, Rift Valley fever, yellow fever, meningitis, opportunistic infections (e.g., AIDS), pneumonia, Burkitt's Lymphoma, chickenpox, hemorrhagic fever, Measles, Mumps, Parainfluenza, Rabies, the common cold, Polio, leukemia, Rubella, sexually transmitted diseases, skin diseases (e.g., Kaposi's, warts), and viremia. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific

embodiments, polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat: meningitis, Dengue, EBV, and/or hepatitis (e.g., hepatitis B). In an additional specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat patients nonresponsive to one or more  
5 other commercially available hepatitis vaccines. In a further specific embodiment polynucleotides, polypeptides, or agonists or antagonists of the invention are used to treat AIDS.

Similarly, bacterial or fungal agents that can cause disease or symptoms and that can be treated or detected by a polynucleotide or polypeptide and/or agonist or  
10 antagonist of the present invention include, but not limited to, include, but not limited to, the following Gram-Negative and Gram-positive bacteria and bacterial families and fungi: Actinomycetales (e.g., Corynebacterium, Mycobacterium, Norcardia), Cryptococcus neoformans, Aspergillosis, Bacillaceae (e.g., Anthrax, Clostridium), Bacteroidaceae, Blastomycosis, Bordetella, Borrelia (e.g., Borrelia burgdorferi,  
15 Brucellosis, Candidiasis, Campylobacter, Coccidioidomycosis, Cryptococcosis, Dermatocycoses, E. coli (e.g., Enterotoxigenic E. coli and Enterohemorrhagic E. coli), Enterobacteriaceae (Klebsiella, Salmonella (e.g., Salmonella typhi, and Salmonella paratyphi), Serratia, Yersinia), Erysipelothrix, Helicobacter, Legionellosis, Leptospirosis, Listeria, Mycoplasmatales, Mycobacterium leprae,  
20 Vibrio cholerae, Neisseriaceae (e.g., Acinetobacter, Gonorrhea, Meningococcal), Meisseria meningitidis, Pasteurellacea Infections (e.g., Actinobacillus, Heamophilus (e.g., Heamophilus influenza type B), Pasteurella), Pseudomonas, Rickettsiaceae, Chlamydiaceae, Syphilis, Shigella spp., Staphylococcal, Meningiococcal, Pneumococcal and Streptococcal (e.g., Streptococcus pneumoniae and Group B  
25 Streptococcus). These bacterial or fungal families can cause the following diseases or symptoms, including, but not limited to: bacteremia, endocarditis, eye infections (conjunctivitis, tuberculosis, uveitis), gingivitis, opportunistic infections (e.g., AIDS related infections), paronychia, prosthesis-related infections, Reiter's Disease, respiratory tract infections, such as Whooping Cough or Empyema, sepsis, Lyme  
30 Disease, Cat-Scratch Disease, Dysentery, Paratyphoid Fever, food poisoning,

Typhoid, pneumonia, Gonorrhea, meningitis (e.g., meningitis types A and B), Chlamydia, Syphilis, Diphtheria, Leprosy, Paratuberculosis, Tuberculosis, Lupus, Botulism, gangrene, tetanus, impetigo, Rheumatic Fever, Scarlet Fever, sexually transmitted diseases, skin diseases (e.g., cellulitis, dermatocycoses), toxemia, urinary tract infections, wound infections. Polynucleotides or polypeptides, agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases. In specific embodiments, polynucleotides, polypeptides, agonists or antagonists of the invention are used to treat: tetanus, Diphtheria, botulism, and/or meningitis type B.

Moreover, parasitic agents causing disease or symptoms that can be treated or detected by a polynucleotide or polypeptide and/or agonist or antagonist of the present invention include, but not limited to, the following families or class: Amebiasis, Babesiosis, Coccidiosis, Cryptosporidiosis, Dientamoebiasis, Dourine, Ectoparasitic, Giardiasis, Helminthiasis, Leishmaniasis, Theileriasis, Toxoplasmosis, Trypanosomiasis, and Trichomonas and Sporozoans (e.g., Plasmodium virax, Plasmodium falciparum, Plasmodium malariae and Plasmodium ovale). These parasites can cause a variety of diseases or symptoms, including, but not limited to: Scabies, Trombiculiasis, eye infections, intestinal disease (e.g., dysentery, giardiasis), liver disease, lung disease, opportunistic infections (e.g., AIDS related), malaria, pregnancy complications, and toxoplasmosis. polynucleotides or polypeptides, or agonists or antagonists of the invention, can be used to treat or detect any of these symptoms or diseases.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention of the present invention could either be by administering an effective amount of a polypeptide to the patient, or by removing cells from the patient, supplying the cells with a polynucleotide of the present invention, and returning the engineered cells to the patient (ex vivo therapy). Moreover, the polypeptide or polynucleotide of the present invention can be used as an antigen in a vaccine to raise an immune response against infectious disease.

### Regeneration

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention can be used to differentiate, proliferate, and attract cells, leading to the regeneration of tissues. (See, Science 276:59-87 (1997).) The regeneration of tissues could be used to repair, replace, or protect tissue damaged by congenital defects, trauma (wounds, burns, incisions, or ulcers), age, disease (e.g. osteoporosis, osteoarthritis, periodontal disease, liver failure), surgery, including cosmetic plastic surgery, fibrosis, reperfusion injury, or systemic cytokine damage.

Tissues that could be regenerated using the present invention include organs (e.g., pancreas, liver, intestine, kidney, skin, endothelium), muscle (smooth, skeletal or cardiac), vasculature (including vascular and lymphatics), nervous, hematopoietic, and skeletal (bone, cartilage, tendon, and ligament) tissue. Preferably, regeneration occurs without or decreased scarring. Regeneration also may include angiogenesis.

Moreover, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, may increase regeneration of tissues difficult to heal. For example, increased tendon/ligament regeneration would quicken recovery time after damage. Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could also be used prophylactically in an effort to avoid damage. Specific diseases that could be treated include of tendinitis, carpal tunnel syndrome, and other tendon or ligament defects. A further example of tissue regeneration of non-healing wounds includes pressure ulcers, ulcers associated with vascular insufficiency, surgical, and traumatic wounds.

Similarly, nerve and brain tissue could also be regenerated by using polynucleotides or polypeptides, as well as agonists or antagonists of the present invention, to proliferate and differentiate nerve cells. Diseases that could be treated using this method include central and peripheral nervous system diseases, neuropathies, or mechanical and traumatic disorders (e.g., spinal cord disorders, head trauma, cerebrovascular disease, and stroke). Specifically, diseases associated with peripheral nerve injuries, peripheral neuropathy (e.g., resulting from chemotherapy or other medical therapies), localized neuropathies, and central nervous system diseases

(e.g., Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager syndrome), could all be treated using the polynucleotides or polypeptides, as well as agonists or antagonists of the present invention.

5

### **Chemotaxis**

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may have chemotaxis activity. A chemotactic molecule attracts or mobilizes cells (e.g., monocytes, fibroblasts, neutrophils, T-cells, mast cells, eosinophils, epithelial and/or endothelial cells) to a particular site in the body, such as inflammation, infection, or site of hyperproliferation. The mobilized cells can then fight off and/or heal the particular trauma or abnormality.

Polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may increase chemotactic activity of particular cells. These chemotactic molecules can then be used to treat inflammation, infection, hyperproliferative disorders, or any immune system disorder by increasing the number of cells targeted to a particular location in the body. For example, chemotactic molecules can be used to treat wounds and other trauma to tissues by attracting immune cells to the injured location. Chemotactic molecules of the present invention can also attract fibroblasts, which can be used to treat wounds.

It is also contemplated that polynucleotides or polypeptides, as well as agonists or antagonists of the present invention may inhibit chemotactic activity. These molecules could also be used to treat disorders. Thus, polynucleotides or polypeptides, as well as agonists or antagonists of the present invention could be used as an inhibitor of chemotaxis.

### **Binding Activity**

A polypeptide of the present invention may be used to screen for molecules that bind to the polypeptide or for molecules to which the polypeptide binds. The binding of the polypeptide and the molecule may activate (agonist), increase, inhibit

(antagonist), or decrease activity of the polypeptide or the molecule bound. Examples of such molecules include antibodies, oligonucleotides, proteins (e.g., receptors), or small molecules.

5 Preferably, the molecule is closely related to the natural ligand of the polypeptide, e.g., a fragment of the ligand, or a natural substrate, a ligand, a structural or functional mimetic. (See, Coligan et al., Current Protocols in Immunology 1(2):Chapter 5 (1991).) Similarly, the molecule can be closely related to the natural receptor to which the polypeptide binds, or at least, a fragment of the receptor capable of being bound by the polypeptide (e.g., active site). In either case, the molecule can  
10 be rationally designed using known techniques.

Preferably, the screening for these molecules involves producing appropriate cells which express the polypeptide. Preferred cells include cells from mammals, yeast, *Drosophila*, or *E. coli*. Cells expressing the polypeptide (or cell membrane containing the expressed polypeptide) are then preferably contacted with a test  
15 compound potentially containing the molecule to observe binding, stimulation, or inhibition of activity of either the polypeptide or the molecule.

The assay may simply test binding of a candidate compound to the polypeptide, wherein binding is detected by a label, or in an assay involving competition with a labeled competitor. Further, the assay may test whether the  
20 candidate compound results in a signal generated by binding to the polypeptide.

Alternatively, the assay can be carried out using cell-free preparations, polypeptide/molecule affixed to a solid support, chemical libraries, or natural product mixtures. The assay may also simply comprise the steps of mixing a candidate compound with a solution containing a polypeptide, measuring polypeptide/molecule  
25 activity or binding, and comparing the polypeptide/molecule activity or binding to a standard.

Preferably, an ELISA assay can measure polypeptide level or activity in a sample (e.g., biological sample) using a monoclonal or polyclonal antibody. The antibody can measure polypeptide level or activity by either binding, directly or  
30 indirectly, to the polypeptide or by competing with the polypeptide for a substrate.

Additionally, the receptor to which the polypeptide of the present invention binds can be identified by numerous methods known to those of skill in the art, for example, ligand panning and FACS sorting (Coligan. et al., Current Protocols in Immun., 1(2), Chapter 5, (1991)). For example, expression cloning is employed wherein polyadenylated RNA is prepared from a cell responsive to the polypeptides, for example, NIH3T3 cells which are known to contain multiple receptors for the FGF family proteins, and SC-3 cells, and a cDNA library created from this RNA is divided into pools and used to transfect COS cells or other cells that are not responsive to the polypeptides. Transfected cells which are grown on glass slides are exposed to the polypeptide of the present invention. after they have been labelled. The polypeptides can be labeled by a variety of means including iodination or inclusion of a recognition site for a site-specific protein kinase.

Following fixation and incubation, the slides are subjected to autoradiographic analysis. Positive pools are identified and sub-pools are prepared and re-transfected using an iterative sub-pooling and re-screening process, eventually yielding a single clones that encodes the putative receptor.

As an alternative approach for receptor identification, the labeled polypeptides can be photoaffinity linked with cell membrane or extract preparations that express the receptor molecule. Cross-linked material is resolved by PAGE analysis and exposed to X-ray film. The labeled complex containing the receptors of the polypeptides can be excised, resolved into peptide fragments, and subjected to protein microsequencing. The amino acid sequence obtained from microsequencing would be used to design a set of degenerate oligonucleotide probes to screen a cDNA library to identify the genes encoding the putative receptors.

Moreover, the techniques of gene-shuffling, motif-shuffling, exon-shuffling, and/or codon-shuffling (collectively referred to as "DNA shuffling") may be employed to modulate the activities of the polypeptide of the present invention thereby effectively generating agonists and antagonists of the polypeptide of the present invention. *See generally*, U.S. Patent Nos. 5,605,793, 5,811,238, 5,830,721, 5,834,252, and 5,837,458. and Patten. P. A., et al., *Curr. Opinion Biotechnol.* 8:724-



33 (1997); Harayama, S. *Trends Biotechnol.* 16(2):76-82 (1998); Hansson, L. O., *et al.*, *J. Mol. Biol.* 287:265-76 (1999); and Lorenzo, M. M. and Blasco, R. *Biotechniques* 24(2):308-13 (1998) (each of these patents and publications are hereby incorporated by reference). In one embodiment, alteration of polynucleotides and corresponding polypeptides may be achieved by DNA shuffling. DNA shuffling involves the assembly of two or more DNA segments into a desired molecule by homologous or site-specific recombination. In another embodiment, polynucleotides and corresponding polypeptides may be altered by being subjected to random mutagenesis by error-prone PCR, random nucleotide insertion or other methods prior to recombination. In another embodiment, one or more components, motifs, sections, parts, domains, fragments, etc. of the polypeptide of the present invention may be recombined with one or more components, motifs, sections, parts, domains, fragments, etc. of one or more heterologous molecules. In preferred embodiments, the heterologous molecules are family members. In further preferred embodiments, the heterologous molecule is a growth factor such as, for example, platelet-derived growth factor (PDGF), insulin-like growth factor (IGF-I), transforming growth factor (TGF)-alpha, epidermal growth factor (EGF), fibroblast growth factor (FGF), TGF-beta, bone morphogenetic protein (BMP)-2, BMP-4, BMP-5, BMP-6, BMP-7, activins A and B, decapentaplegic(dpp), 60A, OP-2, dorsalin, growth differentiation factors (GDFs), nodal, MIS, inhibin-alpha, TGF-beta1, TGF-beta2, TGF-beta3, TGF-beta5, and glial-derived neurotrophic factor (GDNF).

Other preferred fragments are biologically active fragments of the polypeptide of the present invention. Biologically active fragments are those exhibiting activity similar, but not necessarily identical, to an activity of the polypeptide of the present invention. The biological activity of the fragments may include an improved desired activity, or a decreased undesirable activity.

Additionally, this invention provides a method of screening compounds to identify those which modulate the action of the polypeptide of the present invention. An example of such an assay comprises combining a mammalian fibroblast cell, a the polypeptide of the present invention, the compound to be screened and  $^3\text{H}$

thymidine under cell culture conditions where the fibroblast cell would normally proliferate. A control assay may be performed in the absence of the compound to be screened and compared to the amount of fibroblast proliferation in the presence of the compound to determine if the compound stimulates proliferation by determining the uptake of  $^3\text{[H]}$  thymidine in each case. The amount of fibroblast cell proliferation is measured by liquid scintillation chromatography which measures the incorporation of  $^3\text{[H]}$  thymidine. Both agonist and antagonist compounds may be identified by this procedure.

In another method, a mammalian cell or membrane preparation expressing a receptor for a polypeptide of the present invention is incubated with a labeled polypeptide of the present invention in the presence of the compound. The ability of the compound to enhance or block this interaction could then be measured. Alternatively, the response of a known second messenger system following interaction of a compound to be screened and the receptor is measured and the ability of the compound to bind to the receptor and elicit a second messenger response is measured to determine if the compound is a potential agonist or antagonist. Such second messenger systems include but are not limited to, cAMP guanylate cyclase, ion channels or phosphoinositide hydrolysis.

All of these above assays can be used as diagnostic or prognostic markers. The molecules discovered using these assays can be used to treat disease or to bring about a particular result in a patient (e.g., blood vessel growth) by activating or inhibiting the polypeptide/molecule. Moreover, the assays can discover agents which may inhibit or enhance the production of the polypeptides of the invention from suitably manipulated cells or tissues.

Therefore, the invention includes a method of identifying compounds which bind to a polypeptide of the invention comprising the steps of: (a) incubating a candidate binding compound with a polypeptide of the present invention; and (b) determining if binding has occurred. Moreover, the invention includes a method of identifying agonists/antagonists comprising the steps of: (a) incubating a candidate compound with a polypeptide of the present invention, (b) assaying a biological

activity, and (b) determining if a biological activity of the polypeptide has been altered.

### **Targeted Delivery**

5           In another embodiment, the invention provides a method of delivering compositions to targeted cells expressing a receptor for a polypeptide of the invention, or cells expressing a cell bound form of a polypeptide of the invention.

          As discussed herein, polypeptides or antibodies of the invention may be associated with heterologous polypeptides, heterologous nucleic acids, toxins, or  
10       prodrugs via hydrophobic, hydrophilic, ionic and/or covalent interactions. In one embodiment, the invention provides a method for the specific delivery of compositions of the invention to cells by administering polypeptides of the invention (including antibodies) that are associated with heterologous polypeptides or nucleic acids. In one example, the invention provides a method for delivering a therapeutic  
15       protein into the targeted cell. In another example, the invention provides a method for delivering a single stranded nucleic acid (e.g., antisense or ribozymes) or double stranded nucleic acid (e.g., DNA that can integrate into the cell's genome or replicate episomally and that can be transcribed) into the targeted cell.

          In another embodiment, the invention provides a method for the specific  
20       destruction of cells (e.g., the destruction of tumor cells) by administering polypeptides of the invention (e.g., polypeptides of the invention or antibodies of the invention) in association with toxins or cytotoxic prodrugs.

          By "toxin" is meant compounds that bind and activate endogenous cytotoxic effector systems, radioisotopes, holotoxins, modified toxins, catalytic subunits of  
25       toxins, or any molecules or enzymes not normally present in or on the surface of a cell that under defined conditions cause the cell's death. Toxins that may be used according to the methods of the invention include, but are not limited to, radioisotopes known in the art, compounds such as, for example, antibodies (or complement fixing containing portions thereof) that bind an inherent or induced  
30       endogenous cytotoxic effector system, thymidine kinase, endonuclease, RNase, alpha

toxin, ricin, abrin, *Pseudomonas* exotoxin A, diphtheria toxin, saporin, momordin, gelonin, pokeweed antiviral protein, alpha-sarcin and cholera toxin. By "cytotoxic prodrug" is meant a non-toxic compound that is converted by an enzyme, normally present in the cell, into a cytotoxic compound. Cytotoxic prodrugs that may be used according to the methods of the invention include, but are not limited to, glutamyl derivatives of benzoic acid mustard alkylating agent, phosphate derivatives of etoposide or mitomycin C, cytosine arabinoside, daunorubisin, and phenoxyacetamide derivatives of doxorubicin.

## 10 Drug Screening

Further contemplated is the use of the polypeptides of the present invention, or the polynucleotides encoding these polypeptides, to screen for molecules which modify the activities of the polypeptides of the present invention. Such a method would include contacting the polypeptide of the present invention with a selected compound(s) suspected of having antagonist or agonist activity, and assaying the activity of these polypeptides following binding.

This invention is particularly useful for screening therapeutic compounds by using the polypeptides of the present invention, or binding fragments thereof, in any of a variety of drug screening techniques. The polypeptide or fragment employed in such a test may be affixed to a solid support, expressed on a cell surface, free in solution, or located intracellularly. One method of drug screening utilizes eukaryotic or prokaryotic host cells which are stably transformed with recombinant nucleic acids expressing the polypeptide or fragment. Drugs are screened against such transformed cells in competitive binding assays. One may measure, for example, the formulation of complexes between the agent being tested and a polypeptide of the present invention.

Thus, the present invention provides methods of screening for drugs or any other agents which affect activities mediated by the polypeptides of the present invention. These methods comprise contacting such an agent with a polypeptide of the present invention or a fragment thereof and assaying for the presence of a

complex between the agent and the polypeptide or a fragment thereof, by methods well known in the art. In such a competitive binding assay, the agents to screen are typically labeled. Following incubation, free agent is separated from that present in bound form, and the amount of free or uncomplexed label is a measure of the ability of a particular agent to bind to the polypeptides of the present invention.

Another technique for drug screening provides high throughput screening for compounds having suitable binding affinity to the polypeptides of the present invention, and is described in great detail in European Patent Application 84/03564, published on September 13, 1984, which is incorporated herein by reference herein.

Briefly stated, large numbers of different small peptide test compounds are synthesized on a solid substrate, such as plastic pins or some other surface. The peptide test compounds are reacted with polypeptides of the present invention and washed. Bound polypeptides are then detected by methods well known in the art. Purified polypeptides are coated directly onto plates for use in the aforementioned drug screening techniques. In addition, non-neutralizing antibodies may be used to capture the peptide and immobilize it on the solid support.

This invention also contemplates the use of competitive drug screening assays in which neutralizing antibodies capable of binding polypeptides of the present invention specifically compete with a test compound for binding to the polypeptides or fragments thereof. In this manner, the antibodies are used to detect the presence of any peptide which shares one or more antigenic epitopes with a polypeptide of the invention.

#### **Antisense And Ribozyme (Antagonists)**

In specific embodiments, antagonists according to the present invention are nucleic acids corresponding to the sequences contained in SEQ ID NO:X, or the complementary strand thereof, and/or to nucleotide sequences contained in the cDNA contained in the related cDNA clone identified in Table 1. In one embodiment, antisense sequence is generated internally, by the organism, in another embodiment, the antisense sequence is separately administered (see, for example, O'Connor, J..

Neurochem. 56:560 (1991). Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Antisense technology can be used to control gene expression through antisense DNA or RNA, or through triple-helix formation. Antisense techniques are discussed for example, in Okano, J., Neurochem. 56:560 (1991); Oligodeoxynucleotides as Antisense Inhibitors of Gene Expression, CRC Press, Boca Raton, FL (1988). Triple helix formation is discussed in, for instance, Lee et al., Nucleic Acids Research 6:3073 (1979); Cooney et al., Science 241:456 (1988); and Dervan et al., Science 251:1300 (1991). The methods are based on binding of a polynucleotide to a complementary DNA or RNA.

For example, the use of c-myc and c-myb antisense RNA constructs to inhibit the growth of the non-lymphocytic leukemia cell line HL-60 and other cell lines was previously described. (Wickstrom et al. (1988); Anfossi et al. (1989)). These experiments were performed in vitro by incubating cells with the oligoribonucleotide. A similar procedure for in vivo use is described in WO 91/15580. Briefly, a pair of oligonucleotides for a given antisense RNA is produced as follows: A sequence complimentary to the first 15 bases of the open reading frame is flanked by an EcoRI site on the 5' end and a HindIII site on the 3' end. Next, the pair of oligonucleotides is heated at 90°C for one minute and then annealed in 2X ligation buffer (20mM TRIS HCl pH 7.5, 10mM MgCl<sub>2</sub>, 10mM dithiothreitol (DTT) and 0.2 mM ATP) and then ligated to the EcoRI/Hind III site of the retroviral vector PMV7 (WO 91/15580).

For example, the 5' coding portion of a polynucleotide that encodes the polypeptide of the present invention may be used to design an antisense RNA oligonucleotide of from about 10 to 40 base pairs in length. A DNA oligonucleotide is designed to be complementary to a region of the gene involved in transcription thereby preventing transcription and the production of the receptor. The antisense RNA oligonucleotide hybridizes to the mRNA in vivo and blocks translation of the mRNA molecule into receptor polypeptide.

In one embodiment, the antisense nucleic acid of the invention is produced intracellularly by transcription from an exogenous sequence. For example, a vector or a portion thereof, is transcribed, producing an antisense nucleic acid (RNA) of the

invention. Such a vector would contain a sequence encoding the antisense nucleic acid. Such a vector can remain episomal or become chromosomally integrated, as long as it can be transcribed to produce the desired antisense RNA. Such vectors can be constructed by recombinant DNA technology methods standard in the art. Vectors can be plasmid, viral, or others known in the art, used for replication and expression in vertebrate cells. Expression of the sequence encoding the polypeptide of the present invention or fragments thereof, can be by any promoter known in the art to act in vertebrate, preferably human cells. Such promoters can be inducible or constitutive. Such promoters include, but are not limited to, the SV40 early promoter region (Bernoist and Chambon, Nature 29:304-310 (1981)), the promoter contained in the 3' long terminal repeat of Rous sarcoma virus (Yamamoto et al., Cell 22:787-797 (1980)), the herpes thymidine promoter (Wagner et al., Proc. Natl. Acad. Sci. U.S.A. 78:1441-1445 (1981)), the regulatory sequences of the metallothionein gene (Brinster, et al., Nature 296:39-42 (1982)), etc.

The antisense nucleic acids of the invention comprise a sequence complementary to at least a portion of an RNA transcript of a gene of the present invention. However, absolute complementarity, although preferred, is not required. A sequence "complementary to at least a portion of an RNA," referred to herein, means a sequence having sufficient complementarity to be able to hybridize with the RNA, forming a stable duplex; in the case of double stranded antisense nucleic acids, a single strand of the duplex DNA may thus be tested, or triplex formation may be assayed. The ability to hybridize will depend on both the degree of complementarity and the length of the antisense nucleic acid. Generally, the larger the hybridizing nucleic acid, the more base mismatches with a RNA it may contain and still form a stable duplex (or triplex as the case may be). One skilled in the art can ascertain a tolerable degree of mismatch by use of standard procedures to determine the melting point of the hybridized complex.

Oligonucleotides that are complementary to the 5' end of the message, e.g., the 5' untranslated sequence up to and including the AUG initiation codon, should work most efficiently at inhibiting translation. However, sequences complementary to the

3' untranslated sequences of mRNAs have been shown to be effective at inhibiting translation of mRNAs as well. See generally, Wagner, R., 1994, Nature 372:333-335. Thus, oligonucleotides complementary to either the 5'- or 3'- non- translated, non-coding regions of polynucleotide sequences described herein could be used in an antisense approach to inhibit translation of endogenous mRNA. Oligonucleotides complementary to the 5' untranslated region of the mRNA should include the complement of the AUG start codon. Antisense oligonucleotides complementary to mRNA coding regions are less efficient inhibitors of translation but could be used in accordance with the invention. Whether designed to hybridize to the 5'-, 3'- or coding region of mRNA of the present invention, antisense nucleic acids should be at least six nucleotides in length, and are preferably oligonucleotides ranging from 6 to about 50 nucleotides in length. In specific aspects the oligonucleotide is at least 10 nucleotides, at least 17 nucleotides, at least 25 nucleotides or at least 50 nucleotides.

The polynucleotides of the invention can be DNA or RNA or chimeric mixtures or derivatives or modified versions thereof, single-stranded or double-stranded. The oligonucleotide can be modified at the base moiety, sugar moiety, or phosphate backbone, for example, to improve stability of the molecule, hybridization, etc. The oligonucleotide may include other appended groups such as peptides (e.g., for targeting host cell receptors in vivo), or agents facilitating transport across the cell membrane (see, e.g., Letsinger et al., 1989, Proc. Natl. Acad. Sci. U.S.A. 86:6553-6556; Lemaitre et al., 1987, Proc. Natl. Acad. Sci. 84:648-652; PCT Publication No. WO88/09810, published December 15, 1988) or the blood-brain barrier (see, e.g., PCT Publication No. WO89/10134, published April 25, 1988), hybridization-triggered cleavage agents. (See, e.g., Krol et al., 1988, BioTechniques 6:958-976) or intercalating agents. (See, e.g., Zon, 1988, Pharm. Res. 5:539-549). To this end, the oligonucleotide may be conjugated to another molecule, e.g., a peptide, hybridization triggered cross-linking agent, transport agent, hybridization-triggered cleavage agent, etc.

The antisense oligonucleotide may comprise at least one modified base moiety which is selected from the group including, but not limited to, 5-fluorouracil.



5-bromouracil, 5-chlorouracil, 5-iodouracil, hypoxanthine, xantine, 4-acetylcytosine, 5-(carboxyhydroxymethyl) uracil, 5-carboxymethylaminomethyl-2-thiouridine, 5-carboxymethylaminomethyluracil, dihydrouracil, beta-D-galactosylqueosine, inosine, N6-isopentenyladenine, 1-methylguanine, 1-methylinosine, 5 2,2-dimethylguanine, 2-methyladenine, 2-methylguanine, 3-methylcytosine, 5-methylcytosine, N6-adenine, 7-methylguanine, 5-methylaminomethyluracil, 5-methoxyaminomethyl-2-thiouracil, beta-D-mannosylqueosine, 5'-methoxycarboxymethyluracil, 5-methoxyuracil, 2-methylthio-N6-isopentenyladenine, uracil-5-oxyacetic acid (v), wybutoxosine, pseudouracil, 10 queosine, 2-thiocytosine, 5-methyl-2-thiouracil, 2-thiouracil, 4-thiouracil, 5-methyluracil, uracil-5-oxyacetic acid methylester, uracil-5-oxyacetic acid (v), 5-methyl-2-thiouracil, 3-(3-amino-3-N-2-carboxypropyl) uracil, (acp3)w, and 2,6-diaminopurine.

The antisense oligonucleotide may also comprise at least one modified sugar moiety selected from the group including, but not limited to, arabinose, 15 2-fluoroarabinose, xylulose, and hexose.

In yet another embodiment, the antisense oligonucleotide comprises at least one modified phosphate backbone selected from the group including, but not limited to, a phosphorothioate, a phosphorodithioate, a phosphoramidothioate, a 20 phosphoramidate, a phosphordiamidate, a methylphosphonate, an alkyl phosphotriester, and a formacetal or analog thereof.

In yet another embodiment, the antisense oligonucleotide is an a-anomeric oligonucleotide. An a-anomeric oligonucleotide forms specific double-stranded hybrids with complementary RNA in which, contrary to the usual b-units, the strands 25 run parallel to each other (Gautier et al., 1987, Nucl. Acids Res. 15:6625-6641). The oligonucleotide is a 2'-O-methylribonucleotide (Inoue et al., 1987, Nucl. Acids Res. 15:6131-6148), or a chimeric RNA-DNA analogue (Inoue et al., 1987, FEBS Lett. 215:327-330).

Polynucleotides of the invention may be synthesized by standard methods 30 known in the art, e.g. by use of an automated DNA synthesizer (such as are

commercially available from Biosearch. Applied Biosystems. etc.). As examples, phosphorothioate oligonucleotides may be synthesized by the method of Stein et al. (1988, Nucl. Acids Res. 16:3209), methylphosphonate oligonucleotides can be prepared by use of controlled pore glass polymer supports (Sarin et al., 1988, Proc. Natl. Acad. Sci. U.S.A. 85:7448-7451), etc.

While antisense nucleotides complementary to the coding region sequence could be used, those complementary to the transcribed untranslated region are most preferred.

Potential antagonists according to the invention also include catalytic RNA, or a ribozyme (See, e.g., PCT International Publication WO 90/11364, published October 4, 1990; Sarver et al, Science 247:1222-1225 (1990). While ribozymes that cleave mRNA at site specific recognition sequences can be used to destroy mRNAs, the use of hammerhead ribozymes is preferred. Hammerhead ribozymes cleave mRNAs at locations dictated by flanking regions that form complementary base pairs with the target mRNA. The sole requirement is that the target mRNA have the following sequence of two bases: 5'-UG-3'. The construction and production of hammerhead ribozymes is well known in the art and is described more fully in Haseloff and Gerlach, Nature 334:585-591 (1988). There are numerous potential hammerhead ribozyme cleavage sites within the nucleotide sequence of SEQ ID NO:X. Preferably, the ribozyme is engineered so that the cleavage recognition site is located near the 5' end of the mRNA; i.e., to increase efficiency and minimize the intracellular accumulation of non-functional mRNA transcripts.

As in the antisense approach, the ribozymes of the invention can be composed of modified oligonucleotides (e.g. for improved stability, targeting, etc.) and should be delivered to cells which express in vivo. DNA constructs encoding the ribozyme may be introduced into the cell in the same manner as described above for the introduction of antisense encoding DNA. A preferred method of delivery involves using a DNA construct "encoding" the ribozyme under the control of a strong constitutive promoter, such as, for example, pol III or pol II promoter, so that transfected cells will produce sufficient quantities of the ribozyme to destroy

endogenous messages and inhibit translation. Since ribozymes unlike antisense molecules, are catalytic, a lower intracellular concentration is required for efficiency.

Antagonist/agonist compounds may be employed to inhibit the cell growth and proliferation effects of the polypeptides of the present invention on neoplastic cells and tissues, i.e. stimulation of angiogenesis of tumors, and, therefore, retard or prevent abnormal cellular growth and proliferation, for example, in tumor formation or growth.

The antagonist/agonist may also be employed to prevent hyper-vascular diseases, and prevent the proliferation of epithelial lens cells after extracapsular cataract surgery. Prevention of the mitogenic activity of the polypeptides of the present invention may also be desirous in cases such as restenosis after balloon angioplasty.

The antagonist/agonist may also be employed to prevent the growth of scar tissue during wound healing.

The antagonist/agonist may also be employed to treat the diseases described herein.

Thus, the invention provides a method of treating disorders or diseases, including but not limited to the disorders or diseases listed throughout this application, associated with overexpression of a polynucleotide of the present invention by administering to a patient (a) an antisense molecule directed to the polynucleotide of the present invention, and/or (b) a ribozyme directed to the polynucleotide of the present invention.

#### **Other Activities**

A polypeptide, polynucleotide, agonist, or antagonist of the present invention, as a result of the ability to stimulate vascular endothelial cell growth, may be employed in treatment for stimulating re-vascularization of ischemic tissues due to various disease conditions such as thrombosis, arteriosclerosis, and other cardiovascular conditions. The polypeptide, polynucleotide, agonist, or antagonist of

the present invention may also be employed to stimulate angiogenesis and limb regeneration, as discussed above.

5 A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for treating wounds due to injuries, burns, post-operative tissue repair, and ulcers since they are mitogenic to various cells of different origins, such as fibroblast cells and skeletal muscle cells, and therefore, facilitate the repair or replacement of damaged or diseased tissue.

10 A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed stimulate neuronal growth and to treat and prevent neuronal damage which occurs in certain neuronal disorders or neuro-degenerative conditions such as Alzheimer's disease, Parkinson's disease, and AIDS-related complex. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may have the ability to stimulate chondrocyte growth, therefore, they may be employed to enhance bone and periodontal regeneration and aid in tissue transplants or bone  
15 grafts.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be also be employed to prevent skin aging due to sunburn by stimulating keratinocyte growth.

20 A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for preventing hair loss, since FGF family members activate hair-forming cells and promotes melanocyte growth. Along the same lines, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be employed to stimulate growth and differentiation of hematopoietic cells and bone marrow cells when used in combination with other cytokines.

25 A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed to maintain organs before transplantation or for supporting cell culture of primary tissues. A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be employed for inducing tissue of mesodermal origin to differentiate in early embryos.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also increase or decrease the differentiation or proliferation of embryonic stem cells, besides, as discussed above, hematopoietic lineage.

5 A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used to modulate mammalian characteristics, such as body height, weight, hair color, eye color, skin, percentage of adipose tissue, pigmentation, size, and shape (e.g., cosmetic surgery). Similarly, a polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to modulate mammalian metabolism affecting catabolism, anabolism, processing, utilization, and storage of  
10 energy.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may be used to change a mammal's mental state or physical state by influencing biorhythms, cardiac rhythms, depression (including depressive disorders), tendency for violence, tolerance for pain, reproductive capabilities (preferably by Activin or  
15 Inhibin-like activity), hormonal or endocrine levels, appetite, libido, memory, stress, or other cognitive qualities.

A polypeptide, polynucleotide, agonist, or antagonist of the present invention may also be used as a food additive or preservative, such as to increase or decrease storage capabilities, fat content, lipid, protein, carbohydrate, vitamins, minerals,  
20 cofactors or other nutritional components.

The above-recited applications have uses in a wide variety of hosts. Such hosts include, but are not limited to, human, murine, rabbit, goat, guinea pig, camel, horse, mouse, rat, hamster, pig, micro-pig, chicken, goat, cow, sheep, dog, cat, non-human primate, and human. In specific embodiments, the host is a mouse, rabbit,  
25 goat, guinea pig, chicken, rat, hamster, pig, sheep, dog or cat. In preferred embodiments, the host is a mammal. In most preferred embodiments, the host is a human.

#### **Other Preferred Embodiments**

Other preferred embodiments of the claimed invention include an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 50 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Also preferred is a nucleic acid molecule wherein said sequence of contiguous nucleotides is included in the nucleotide sequence of SEQ ID NO:X in the range of positions identified as "Start" and "End" in columns 7 and 8 as defined for SEQ ID NO:X in Table 1.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 150 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least about 500 contiguous nucleotides in the nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the nucleotide sequence of SEQ ID NO:X in the range of positions identified as "Start" and "End" in columns 7 and 8 as defined for SEQ ID NO:X in Table 1.

A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule which hybridizes under stringent hybridization conditions to a nucleic acid molecule comprising a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto, and/or the cDNA in

the related cDNA clone contained in the deposit, wherein said nucleic acid molecule which hybridizes does not hybridize under stringent hybridization conditions to a nucleic acid molecule having a nucleotide sequence consisting of only A residues or of only T residues.

5 Also preferred is a composition of matter comprising a DNA molecule which comprises a cDNA clone contained in the deposit.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides in the nucleotide sequence of the cDNA in the related cDNA clone  
10 contained in the deposit.

Also preferred is an isolated nucleic acid molecule, wherein said sequence of at least 50 contiguous nucleotides is included in the nucleotide sequence of an open reading frame sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

15 Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to sequence of at least 150 contiguous nucleotides in the nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is an isolated nucleic acid molecule  
20 comprising a nucleotide sequence which is at least 95% identical to sequence of at least 500 contiguous nucleotides in the nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to the complete  
25 nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

A further preferred embodiment is a method for detecting in a biological sample a nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence  
30 selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the

complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit: which method comprises a step of comparing a nucleotide sequence of at least one nucleic acid molecule in said sample with a sequence selected from said group and determining whether the sequence of  
5 said nucleic acid molecule in said sample is at least 95% identical to said selected sequence.

Also preferred is the above method wherein said step of comparing sequences comprises determining the extent of nucleic acid hybridization between nucleic acid molecules in said sample and a nucleic acid molecule comprising said sequence  
10 selected from said group. Similarly, also preferred is the above method wherein said step of comparing sequences is performed by comparing the nucleotide sequence determined from a nucleic acid molecule in said sample with said sequence selected from said group. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

15 A further preferred embodiment is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting nucleic acid molecules in said sample, if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the  
20 complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit.

Also preferred is the above method for identifying the species, tissue or cell type of a biological sample which comprises a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide  
25 sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from said group.

Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleotide sequence of SEQ ID NO:X; or the cDNA in the related cDNA clone identified in Table 1 which encodes a  
30 protein. wherein the method comprises a step of detecting in a biological sample



obtained from said subject nucleic acid molecules, if any, comprising a nucleotide sequence that is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide  
5 sequence of the cDNA in the related cDNA clone contained in the deposit.

Also preferred is the above method for diagnosing a pathological condition which comprises a step of detecting nucleic acid molecules comprising a nucleotide sequence in a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous  
10 nucleotides in a sequence selected from said group.

Also preferred is a composition of matter comprising isolated nucleic acid molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a panel of at least two nucleotide sequences, wherein at least one sequence in said panel is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a  
15 sequence selected from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the related cDNA clone contained in the deposit. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

Also preferred is a composition of matter comprising isolated nucleic acid  
20 molecules wherein the nucleotide sequences of said nucleic acid molecules comprise a DNA microarray or "chip" of at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 100, 150, 200, 250, 300, 500, 1000, 2000, 3000 or 4000 nucleotide sequences, wherein at least one sequence in said DNA microarray or "chip" is at least 95% identical to a sequence of at least 50 contiguous nucleotides in a sequence selected  
25 from the group consisting of: a nucleotide sequence of SEQ ID NO:X or the complementary strand thereto; and a nucleotide sequence encoded by the cDNA in the cDNA clone referenced in Table 1. The nucleic acid molecules can comprise DNA molecules or RNA molecules.

Also preferred is an isolated polypeptide comprising an amino acid sequence  
30 at least 90% identical to a sequence of at least about 10 contiguous amino acids in the

polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Also preferred is an isolated polypeptide comprising an amino acid sequence  
5 at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid  
10 sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid  
15 sequence at least 95% identical to the complete amino acid sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and/or a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

Further preferred is an isolated polypeptide comprising an amino acid  
20 sequence at least 90% identical to a sequence of at least about 10 contiguous amino acids in the complete amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Also preferred is a polypeptide wherein said sequence of contiguous amino  
acids is included in the amino acid sequence of a portion of said polypeptide encoded by the cDNA clone referenced in Table 1; a polypeptide encoded by SEQ ID NO:X;  
25 and/or the polypeptide sequence of SEQ ID NO:Y.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 30 contiguous amino acids in the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence of at least about 100 contiguous amino acids in the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

5 Also preferred is an isolated polypeptide comprising an amino acid sequence at least 95% identical to the amino acid sequence of a polypeptide encoded by the cDNA clone referenced in Table 1.

10 Further preferred is an isolated antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone contained in the deposit.

15 Further preferred is a method for detecting in a biological sample a polypeptide comprising an amino acid sequence which is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1; which method comprises a step of comparing an amino acid  
20 sequence of at least one polypeptide molecule in said sample with a sequence selected from said group and determining whether the sequence of said polypeptide molecule in said sample is at least 90% identical to said sequence of at least 10 contiguous amino acids.

25 Also preferred is the above method wherein said step of comparing an amino acid sequence of at least one polypeptide molecule in said sample with a sequence selected from said group comprises determining the extent of specific binding of polypeptides in said sample to an antibody which binds specifically to a polypeptide comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: a  
30 polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X:

and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is the above method wherein said step of comparing sequences is performed by comparing the amino acid sequence determined from a polypeptide molecule in said sample with said sequence selected from said group.

Also preferred is a method for identifying the species, tissue or cell type of a biological sample which method comprises a step of detecting polypeptide molecules in said sample, if any, comprising an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is the above method for identifying the species, tissue or cell type of a biological sample, which method comprises a step of detecting polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the above group.

Also preferred is a method for diagnosing in a subject a pathological condition associated with abnormal structure or expression of a nucleic acid sequence identified in Table 1 encoding a polypeptide, which method comprises a step of detecting in a biological sample obtained from said subject polypeptide molecules comprising an amino acid sequence in a panel of at least two amino acid sequences, wherein at least one sequence in said panel is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

In any of these methods, the step of detecting said polypeptide molecules includes using an antibody.

Also preferred is an isolated nucleic acid molecule comprising a nucleotide sequence which is at least 95% identical to a nucleotide sequence encoding a polypeptide wherein said polypeptide comprises an amino acid sequence that is at least 90% identical to a sequence of at least 10 contiguous amino acids in a sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Also preferred is an isolated nucleic acid molecule, wherein said nucleotide sequence encoding a polypeptide has been optimized for expression of said polypeptide in a prokaryotic host.

Also preferred is an isolated nucleic acid molecule, wherein said polypeptide comprises an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1.

Further preferred is a method of making a recombinant vector comprising inserting any of the above isolated nucleic acid molecule into a vector. Also preferred is the recombinant vector produced by this method. Also preferred is a method of making a recombinant host cell comprising introducing the vector into a host cell, as well as the recombinant host cell produced by this method.

Also preferred is a method of making an isolated polypeptide comprising culturing this recombinant host cell under conditions such that said polypeptide is expressed and recovering said polypeptide. Also preferred is this method of making an isolated polypeptide, wherein said recombinant host cell is a eukaryotic cell and said polypeptide is a human protein comprising an amino acid sequence selected from the group consisting of: polypeptide sequence of SEQ ID NO:Y; a polypeptide encoded by SEQ ID NO:X; and a polypeptide encoded by the cDNA in the related cDNA clone referenced in Table 1. The isolated polypeptide produced by this method is also preferred.

Also preferred is a method of treatment of an individual in need of an increased level of a protein activity, which method comprises administering to such

an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to increase the level of said protein activity in said individual.

- 5           Also preferred is a method of treatment of an individual in need of a decreased level of a protein activity, which method comprised administering to such an individual a Therapeutic comprising an amount of an isolated polypeptide, polynucleotide, immunogenic fragment or analogue thereof, binding agent, antibody, or antigen binding fragment of the claimed invention effective to decrease the level of
- 10   said protein activity in said individual.

          Having generally described the invention, the same will be more readily understood by reference to the following examples, which are provided by way of illustration and are not intended as limiting.

*Examples**Example 1: Isolation of a Selected cDNA Clone From the Deposited Sample*

5 Each deposited cDNA clone is contained in a plasmid vector. Table 5 identifies the vectors used to construct the cDNA library from which each clone was isolated. In many cases, the vector used to construct the library is a phage vector from which a plasmid has been excised. The following correlates the related plasmid for each phage vector used in constructing the cDNA library. For example, where a  
 10 particular clone is identified in Table 5 as being isolated in the vector "Lambda Zap," the corresponding deposited clone is in "pBluescript."

	<u>Vector Used to Construct Library</u>	<u>Corresponding Deposited Plasmid</u>
	Lambda Zap	pBluescript (pBS)
	Uni-Zap XR	pBluescript (pBS)
15	Zap Express	pBK
	lafmid BA	plafmid BA
	pSport1	pSport1
	pCMVSPORT 2.0	pCMVSPORT 2.0
	pCMVSPORT 3.0	pCMVSPORT 3.0
20	pCR <sup>®</sup> 2.1	pCR <sup>®</sup> 2.1

Vectors Lambda Zap (U.S. Patent Nos. 5,128,256 and 5,286,636), Uni-Zap XR (U.S. Patent Nos. 5,128, 256 and 5,286,636), Zap Express (U.S. Patent Nos. 5,128,256 and 5,286,636), pBluescript (pBS) (Short, J. M. et al., Nucleic Acids Res. 16:7583-7600 (1988); Alting-Mees, M. A. and Short, J. M., Nucleic Acids Res. 17:9494 (1989)) and pBK (Alting-Mees, M. A. et al., Strategies 5:58-61 (1992)) are  
 25 commercially available from Stratagene Cloning Systems, Inc., 11011 N. Torrey Pines Road, La Jolla, CA, 92037. pBS contains an ampicillin resistance gene and pBK contains a neomycin resistance gene. Both can be transformed into E. coli strain XL-1 Blue, also available from Stratagene. pBS comes in 4 forms SK+, SK-, KS+ and KS. The S and K refers to the orientation of the polylinker to the T7 and T3  
 30

primer sequences which flank the polylinker region ("S" is for SacI and "K" is for KpnI which are the first sites on each respective end of the linker). "+" or "-" refer to the orientation of the fl origin of replication ("ori"), such that in one orientation, single stranded rescue initiated from the fl ori generates sense strand DNA and in the other, antisense.

Vectors pSport1, pCMVSPORT 2.0 and pCMVSPORT 3.0, were obtained from Life Technologies, Inc., P. O. Box 6009, Gaithersburg, MD 20897. All Sport vectors contain an ampicillin resistance gene and may be transformed into E. coli strain DH10B, also available from Life Technologies. (See, for instance, Gruber, C. E., et al., Focus 15:59 (1993).) Vector lafmid BA (Bento Soares, Columbia University, NY) contains an ampicillin resistance gene and can be transformed into E. coli strain XL-1 Blue. Vector pCR<sup>®</sup>2.1, which is available from Invitrogen, 1600 Faraday Avenue, Carlsbad, CA 92008, contains an ampicillin resistance gene and may be transformed into E. coli strain DH10B, available from Life Technologies. (See, for instance, Clark, J. M., Nuc. Acids Res. 16:9677-9686 (1988) and Mead, D. et al., Bio/Technology 9: (1991).) Preferably, a polynucleotide of the present invention does not comprise the phage vector sequences identified for the particular clone in Table 5, as well as the corresponding plasmid vector sequences designated above.

The deposited material in the sample assigned the ATCC Deposit Number cited by reference to Table 2 and 5 for any given cDNA clone also may contain one or more additional plasmids, each comprising a cDNA clone different from that given clone. Thus, deposits sharing the same ATCC Deposit Number contain at least a plasmid for each cDNA clone referenced in Table 1.



**TABLE 5**

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HUKA HUKB HUKC HUKD HUKF HUKF HUKG	Human Uterine Cancer	Lambda ZAP II	LP01
HCNA HCNB	Human Colon	Lambda Zap II	LP01
HFFA	Human Fetal Brain. random primed	Lambda Zap II	LP01
HTWA	Resting T-Cell	Lambda ZAP II	LP01
HBQA	Early Stage Human Brain. random primed	Lambda ZAP II	LP01
HLMB HLMF HLMG HLMH HLMI HLMJ HLMM HLMN	breast lymph node CDNA library	Lambda ZAP II	LP01
HCQA HCQB	human colon cancer	Lambda ZAP II	LP01
HMEA HMEC HMED HMEF HMEF HMEG HMEI HMEJ HMEK HMEI HMEI	Human Microvascular Endothelial Cells. fract. A	Lambda ZAP II	LP01
HUSA HUSC	Human Umbilical Vein Endothelial Cells. fract. A	Lambda ZAP II	LP01
HLQA HLQB	Hepatocellular Tumor	Lambda ZAP II	LP01
HHGA HHGB HHGC HHGD	Hemangiopericytoma	Lambda ZAP II	LP01
HSDM	Human Striatum Depression. re-rescue	Lambda ZAP II	LP01
HUSH	H Umbilical Vein Endothelial Cells, frac A. re-excision	Lambda ZAP II	LP01
HSGS	Salivary gland. subtracted	Lambda ZAP II	LP01
HFXA HFXB HFXC HFXD HFXE HFXF HFXG HFXH	Brain frontal cortex	Lambda ZAP II	LP01
HPQA HPQB HPQC	PERM TF274	Lambda ZAP II	LP01
HFXJ HFXK	Brain Frontal Cortex. re-excision	Lambda ZAP II	LP01
HCWA HCWB HCWC HCWD HCWE HCWF HCWG HCWH HCWI HCWJ HCWK	CD34 positive cells (Cord Blood)	ZAP Express	LP02
HCUA HCUB HCUC	CD34 depleted Buffy Coat (Cord Blood)	ZAP Express	LP02
HRSM	A-14 cell line	ZAP Express	LP02
HRSA	A1-CELL LINE	ZAP Express	LP02
HCUD HCUE HCUF HCUG HCUH HCUI	CD34 depleted Buffy Coat (Cord Blood). re-excision	ZAP Express	LP02
HBXE HBXF HBXG	H. Whole Brain #2. re-excision	ZAP Express	LP02
HRLM	L8 cell line	ZAP Express	LP02
HBXA HBXB HBXC HBXD	Human Whole Brain #2 - Oligo dT > 1.5Kb	ZAP Express	LP02
HUDA HUDB HUDC	Testes	ZAP Express	LP02
HHTM HHTN HHTO	H. hypothalamus. frac A:re-excision	ZAP Express	LP02
HHTL	H. hypothalamus. frac A	ZAP Express	LP02
HASA HASD	Human Adult Spleen	Uni-ZAP XR	LP03
HFKC HFKD HFKE HFKF HFKG	Human Fetal Kidney	Uni-ZAP XR	LP03
HE8A HE8B HE8C HE8D HE8E HE8F HE8M HE8N	Human 8 Week Whole Embryo	Uni-ZAP XR	LP03
HGBA HGBD HGBE HGBF HGBG HGBH HGBI	Human Gall Bladder	Uni-ZAP XR	LP03
HLHA HLHB HLHC HLHD HLHE	Human Fetal Lung III	Uni-ZAP XR	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HLHF HLHG HLHH HLHQ			
HPMA HPMB HPMC HPMD HPME HPMF HPMG HPMH	Human Placenta	Uni-ZAP XR	LP03
HPRA HPRB HPRC HPRD	Human Prostate	Uni-ZAP XR	LP03
HSIA HSIC HSID HSIE	Human Adult Small Intestine	Uni-ZAP XR	LP03
HTEA HTEB HTEC HTED HTEE HTEF HTEG HTEH HTEI HTEJ HTEK	Human Testes	Uni-ZAP XR	LP03
HTPA HTPB HTPC HTPD HTPF	Human Pancreas Tumor	Uni-ZAP XR	LP03
HTTA HTTB HTTC HTTD HTTE HTTF	Human Testes Tumor	Uni-ZAP XR	LP03
HAPA HAPB HAPC HAPM	Human Adult Pulmonary	Uni-ZAP XR	LP03
HETA HETB HETC HETD HETE HETF HETG HETH HETI	Human Endometrial Tumor	Uni-ZAP XR	LP03
HHFB HHFC HHFD HHFE HHFF HHFG HHFH HHFI	Human Fetal Heart	Uni-ZAP XR	LP03
HHPB HHPD HHPF HHPG HHPH	Human Hippocampus	Uni-ZAP XR	LP03
HCE1 HCE2 HCE3 HCE4 HCE5 HCEB HCEC HCED HCEE HCEF HCEG	Human Cerebellum	Uni-ZAP XR	LP03
HUVB HUV C HUV D HUV E	Human Umbilical Vein, Endo. remake	Uni-ZAP XR	LP03
HSTA HSTB HSTC HSTD	Human Skin Tumor	Uni-ZAP XR	LP03
HTAA HTAB HTAC HTAD HTAE	Human Activated T-Cells	Uni-ZAP XR	LP03
HFEA HFEB HFEC	Human Fetal Epithelium (Skin)	Uni-ZAP XR	LP03
HJPA HJPB HJPC HJPD	HUMAN JURKAT MEMBRANE BOUND POLYSOMES	Uni-ZAP XR	LP03
HESA	Human epithelioid sarcoma	Uni-Zap XR	LP03
HLTA HLTB HLTC HLTD HLTE HLTF	Human T-Cell Lymphoma	Uni-ZAP XR	LP03
HFTA HFTB HFTC HFTD	Human Fetal Dura Mater	Uni-ZAP XR	LP03
HRDA HRDB HRDC HRDD HRDE HRDF	Human Rhabdomyosarcoma	Uni-ZAP XR	LP03
HCAA HCAB HCAC	Cem cells cyclohexamide treated	Uni-ZAP XR	LP03
HRGA HRGB HRGC HRGD	Raji Cells. cyclohexamide treated	Uni-ZAP XR	LP03
HSUA HSUB HSUC HSUM	Supt Cells, cyclohexamide treated	Uni-ZAP XR	LP03
HT4A HT4C HT4D	Activated T-Cells, 12 hrs.	Uni-ZAP XR	LP03
HE9A HE9B HE9C HE9D HE9E HE9F HE9G HE9H HE9M HE9N	Nine Week Old Early Stage Human	Uni-ZAP XR	LP03
HATA HATB HATC HATD HATE	Human Adrenal Gland Tumor	Uni-ZAP XR	LP03
HT5A	Activated T-Cells, 24 hrs.	Uni-ZAP XR	LP03
HFGA HFGM	Human Fetal Brain	Uni-ZAP XR	LP03
HNEA HNEB HNEC HNED HNEE	Human Neutrophil	Uni-ZAP XR	LP03
HBGB HBGD	Human Primary Breast Cancer	Uni-ZAP XR	LP03
HBNA HBNB	Human Normal Breast	Uni-ZAP XR	LP03
HCAS	Cem Cells. cyclohexamide treated. subtra	Uni-ZAP XR	LP03
HHPS	Human Hippocampus. subtracted	pBS	LP03
HKCS HKCU	Human Colon Cancer. subtracted	pBS	LP03
HRGS	Raji cells. cyclohexamide treated. subtracted	pBS	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HSUT	Supt cells. cyclohexamide treated, differentially expressed	pBS	LP03
HT4S	Activated T-Cells. 12 hrs. subtracted	Uni-ZAP XR	LP03
HCDA HCDB HCDC HCDD HCDE	Human Chondrosarcoma	Uni-ZAP XR	LP03
HOAA HOAB HOAC	Human Osteosarcoma	Uni-ZAP XR	LP03
HTLA HTLB HTLC HTLD HTLE HTLF	Human adult testis. large inserts	Uni-ZAP XR	LP03
HLMA HLMC HLMD	Breast Lymph node cDNA library	Uni-ZAP XR	LP03
H6EA H6EB H6EC	HL-60. PMA 4H	Uni-ZAP XR	LP03
HTXA HTXB HTXC HTXD HTXE HTXF HTXG HTXH	Activated T-Cell (12hs)/Thiouridine labelledEco	Uni-ZAP XR	LP03
HNFA HNFB HNFC HNFD HNFE HNFF HNFG HNFH HNFJ	Human Neutrophil. Activated	Uni-ZAP XR	LP03
HTOB HTOC	HUMAN TONSILS. FRACTION 2	Uni-ZAP XR	LP03
HMGB	Human OB MG63 control fraction I	Uni-ZAP XR	LP03
HOPB	Human OB HOS control fraction I	Uni-ZAP XR	LP03
HORB	Human OB HOS treated (10 nM E2) fraction I	Uni-ZAP XR	LP03
HSVA HSVB HSVC	Human Chronic Synovitis	Uni-ZAP XR	LP03
HROA	HUMAN STOMACH	Uni-ZAP XR	LP03
HBJA HBJB HBJC HBJD HBJE HBJF HBJG HBJH HBJI HBJJ HBJK	HUMAN B CELL LYMPHOMA	Uni-ZAP XR	LP03
HCRA HCRB HCRC	human corpus colosum	Uni-ZAP XR	LP03
HODA HODB HODC HODD	human ovarian cancer	Uni-ZAP XR	LP03
HDSA	Dermatofibrosarcoma Protuberance	Uni-ZAP XR	LP03
HMWA HMWB HMWC HMWD HMWE HMWF HMWG HMWH HMWI HMWJ	Bone Marrow Cell Line (RS4;11)	Uni-ZAP XR	LP03
HSOA	stomach cancer (human)	Uni-ZAP XR	LP03
HERA	SKIN	Uni-ZAP XR	LP03
HMDA	Brain-medulloblastoma	Uni-ZAP XR	LP03
HGLA HGLB HGLD	Glioblastoma	Uni-ZAP XR	LP03
HEAA	H. Atrophic Endometrium	Uni-ZAP XR	LP03
HBCA HBCB	H. Lymph node breast Cancer	Uni-ZAP XR	LP03
HPWT	Human Prostate BPH. re-excision	Uni-ZAP XR	LP03
HFVG HFVH HFVI	Fetal Liver. subtraction II	pBS	LP03
HNFI	Human Neutrophils. Activated, re-excision	pBS	LP03
HBMB HBMC HBMD	Human Bone Marrow. re-excision	pBS	LP03
HKML HKMM HKMN	H. Kidney Medulla. re-excision	pBS	LP03
HKIX HKIY	H. Kidney Cortex. subtracted	pBS	LP03
HADT	H. Amygdala Depression. subtracted	pBS	LP03
H6AS	HL-60. untreated, subtracted	Uni-ZAP XR	LP03
H6ES	HL-60. PMA 4H. subtracted	Uni-ZAP XR	LP03
H6BS	HL-60. RA 4h. Subtracted	Uni-ZAP XR	LP03
H6CS	HL-60. PMA 1d. subtracted	Uni-ZAP XR	LP03
HTXJ HTXK	Activated T-cell(12h)/Thiouridine-re-	Uni-ZAP XR	LP03

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
	excision		
HMSA HMSB HMSC HMSD HMSE HMSF HMSG HMSH HMSI HMSJ HMSK	Monocyte activated	Uni-ZAP XR	LP03
HAGA HAGB HAGC HAGD HAGE HAGF	Human Amygdala	Uni-ZAP XR	LP03
HSRA HSRB HSRE	STROMAL -OSTEOCLASTOMA	Uni-ZAP XR	LP03
HSRD HSRF HSRG HSRH	Human Osteoclastoma Stromal Cells - unamplified	Uni-ZAP XR	LP03
HSQA HSQB HSQC HSQD HSQE HSQF HSQG	Stromal cell TF274	Uni-ZAP XR	LP03
HSKA HSKB HSKC HSKD HSKE HSKF HSKZ	Smooth muscle. serum treated	Uni-ZAP XR	LP03
HSLA HSLB HSLC HSLD HSLE HSLF HSLG	Smooth muscle.control	Uni-ZAP XR	LP03
HSDA HSDD HSDE HSDF HSDG HSDH	Spinal cord	Uni-ZAP XR	LP03
HPWS	Prostate-BPH subtracted II	pBS	LP03
HSKW HSKX HSKY	Smooth Muscle- HASTE normalized	pBS	LP03
HFPB HFPC HFPD	H. Frontal cortex.epileptic:re-excision	Uni-ZAP XR	LP03
HSDI HSDJ HSDK	Spinal Cord. re-excision	Uni-ZAP XR	LP03
HSKN HSKO	Smooth Muscle Serum Treated. Norm	pBS	LP03
HSKG HSKH HSKI	Smooth muscle. serum induced.re-exc	pBS	LP03
HFCA HFCE HFCC HFCD HFCE HFCE	Human Fetal Brain	Uni-ZAP XR	LP04
HPTA HPTB HPTD	Human Pituitary	Uni-ZAP XR	LP04
HTHB HTHC HTHD	Human Thymus	Uni-ZAP XR	LP04
HE6B HE6C HE6D HE6E HE6F HE6G HE6S	Human Whole Six Week Old Embryo	Uni-ZAP XR	LP04
HSSA HSSB HSSC HSSD HSSE HSSF HSSG HSSH HSSI HSSJ HSSK HE7T	Human Synovial Sarcoma	Uni-ZAP XR	LP04
	7 Week Old Early Stage Human, subtracted	Uni-ZAP XR	LP04
HEPA HEPB HEPC	Human Epididymus	Uni-ZAP XR	LP04
HSNA HSNB HSNB HSNM HSNM	Human Synovium	Uni-ZAP XR	LP04
HPFB HPFC HPFD HPFE	Human Prostate Cancer. Stage C fraction	Uni-ZAP XR	LP04
HE2A HE2D HE2E HE2H HE2I HE2M HE2N HE2O	12 Week Old Early Stage Human	Uni-ZAP XR	LP04
HE2B HE2C HE2F HE2G HE2P HE2Q	12 Week Old Early Stage Human. II	Uni-ZAP XR	LP04
HPTS HPTT HPTU	Human Pituitary. subtracted	Uni-ZAP XR	LP04
HAUA HAUB HAUC	Amniotic Cells - TNF induced	Uni-ZAP XR	LP04
HAQA HAQB HAQC HAQD	Amniotic Cells - Primary Culture	Uni-ZAP XR	LP04
HWTA HWTB HWTC	wilm's tumor	Uni-ZAP XR	LP04
HBSD	Bone Cancer. re-excision	Uni-ZAP XR	LP04
HSGB	Salivary gland. re-excision	Uni-ZAP XR	LP04
HSJA HSJB HSJC	Smooth muscle-ILb induced	Uni-ZAP XR	LP04
HSXA HSXB HSXC HSXD	Human Substantia Nigra	Uni-ZAP XR	LP04
HSHA HSHB HSHC	Smooth muscle. IL1b induced	Uni-ZAP XR	LP04
HOUA HOUB HOUC HOUD HOUE	Adipocytes	Uni-ZAP XR	LP04

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HPWA HPWB HPWC HPWD HPWE	Prostate BPH	Uni-ZAP XR	LP04
HELA HELB HELC HELD HELE HELF HELG HELH	Endothelial cells-control	Uni-ZAP XR	LP04
HEMA HEMB HEMC HEMD HEME HEMF HEMG HEMH	Endothelial-induced	Uni-ZAP XR	LP04
HBIA HBIB HBIC	Human Brain. Striatum	Uni-ZAP XR	LP04
HHSa HHSB HHSC HHSD HHSE	Human Hypothalamus.Schizophrenia	Uni-ZAP XR	LP04
HNGA HNGB HNGC HNGD HNGE HNGF HNGG HNGH HNGI HNGJ	neutrophils control	Uni-ZAP XR	LP04
HNHA HNHB HNHC HNHD HNHE HNHF HNHG HNHH HNHI HNHI	Neutrophils IL-1 and LPS induced	Uni-ZAP XR	LP04
HSDB HSDC	STRIATUM DEPRESSION	Uni-ZAP XR	LP04
HHPT	Hypothalamus	Uni-ZAP XR	LP04
HSAT HSAU HSAV HSAW HSAX HSAY HSAZ	Anergic T-cell	Uni-ZAP XR	LP04
HBMS HBMT HBMU HBMV HBMW HBMX	Bone marrow	Uni-ZAP XR	LP04
HOEA HOEB HOEC HOED HOEE HOEF HOEJ	Osteoblasts	Uni-ZAP XR	LP04
HAIA HAIB HAIC HAID HAIE HAIF	Epithelial-TNF $\alpha$ and INF induced	Uni-ZAP XR	LP04
HTGA HTGB HTGC HTGD	Apoptotic T-cell	Uni-ZAP XR	LP04
HMCA HMCB HMCC HMCD HMCE	Macrophage-oxLDL	Uni-ZAP XR	LP04
HMAA HMAB HMAG HMAD HMAE HMAF HMAG	Macrophage (GM-CSF treated)	Uni-ZAP XR	LP04
HPHA	Normal Prostate	Uni-ZAP XR	LP04
HPIA HPIB HPIC	LNCAP prostate cell line	Uni-ZAP XR	LP04
HPJA HPJB HPJC	PC3 Prostate cell line	Uni-ZAP XR	LP04
HOSE HOSF HOSG	Human Osteoclastoma. re-excision	Uni-ZAP XR	LP04
HTGE HTGF	Apoptotic T-cell. re-excision	Uni-ZAP XR	LP04
HMAJ HMAK	H Macrophage (GM-CSF treated), re-excision	Uni-ZAP XR	LP04
HACB HACC HACD	Human Adipose Tissue. re-excision	Uni-ZAP XR	LP04
HFPA	H. Frontal Cortex. Epileptic	Uni-ZAP XR	LP04
HFAA HFAB HFAC HFAD HFAE	Alzheimers. spongy change	Uni-ZAP XR	LP04
HFAM	Frontal Lobe. Dementia	Uni-ZAP XR	LP04
HMIA HMIB HMIC	Human Manic Depression Tissue	Uni-ZAP XR	LP04
HTSA HTSE HTSF HTSG HTSH	Human Thymus	pBS	LP05
HPBA HPBB HPBC HPBD HPBE	Human Pineal Gland	pBS	LP05
HSAA HSAB HSAC	HSA 172 Cells	pBS	LP05
HSBA HSBB HSBC HSBM	HSC172 cells	pBS	LP05
HJAA HJAB HJAC HJAD	Jurkat T-cell G1 phase	pBS	LP05
HJBA HJBB HJBC HJBD	Jurkat T-Cell. S phase	pBS	LP05
HAFA HAFB	Aorta endothelial cells + TNF- $\alpha$	pBS	LP05
HAWA HAWB HAWC	Human White Adipose	pBS	LP05
HTNA HTNB	Human Thyroid	pBS	LP05
HONA	Normal Ovary. Premenopausal	pBS	LP05
HARA HARB	Human Adult Retina	pBS	LP05

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HLJA HLJB	Human Lung	pCMVSPORT 1	LP06
HOFM HOFN HOFO	H. Ovarian Tumor. II. OV5232	pCMVSPORT 2.0	LP07
HOGA HOGB HOGC	OV 10-3-95	pCMVSPORT 2.0	LP07
HCGL	CD34+cells. II	pCMVSPORT 2.0	LP07
HDLA	Hodgkin's Lymphoma I	pCMVSPORT 2.0	LP07
HDTA HDTB HDTC HDTD HDTE	Hodgkin's Lymphoma II	pCMVSPORT 2.0	LP07
HKAA HKAB HKAC HKAD HKAE HKAF HKAG HKAH	Keratinocyte	pCMVSPORT2.0	LP07
HCIM	CAPFINDER, Crohn's Disease. lib 2	pCMVSPORT 2.0	LP07
HKAL	Keratinocyte. lib 2	pCMVSPORT2.0	LP07
HKAT	Keratinocyte. lib 3	pCMVSPORT2.0	LP07
HNDA	Nasal polyps	pCMVSPORT2.0	LP07
HDRA	H. Primary Dendritic Cells.lib 3	pCMVSPORT2.0	LP07
HOHA HOHB HOHC	Human Osteoblasts II	pCMVSPORT2.0	LP07
HLDA HLDB HLDC	Liver. Hepatoma	pCMVSPORT3.0	LP08
HLDN HLDO HLDP	Human Liver. normal	pCMVSPORT3.0	LP08
HMTA	pBMC stimulated w/ poly I/C	pCMVSPORT3.0	LP08
HNTA	NTERA2. control	pCMVSPORT3.0	LP08
HDP A HDPB HDP C HDPD HDPF HDPG HDPH HDPI HDPJ HDPK	Primary Dendritic Cells. lib 1	pCMVSPORT3.0	LP08
HDP M HDP N HDPO HDPP	Primary Dendritic cells.frac 2	pCMVSPORT3.0	LP08
HMUA HMUB HMUC	Myeloid Progenitor Cell Line	pCMVSPORT3.0	LP08
HHEA HHEB HHEC HHED	T Cell helper I	pCMVSPORT3.0	LP08
HHEM HHEN HHEO HHEP	T cell helper II	pCMVSPORT3.0	LP08
HEQA HEQB HEQC	Human endometrial stromal cells	pCMVSPORT3.0	LP08
HJMA HJMB	Human endometrial stromal cells-treated with progesterone	pCMVSPORT3.0	LP08
HSWA HSWB HSWC	Human endometrial stromal cells-treated with estradiol	pCMVSPORT3.0	LP08
HSYA HSYB HSYC	Human Thymus Stromal Cells	pCMVSPORT3.0	LP08
HLWA HLWB HLWC	Human Placenta	pCMVSPORT3.0	LP08
HRAA HRAB HRAC	Rejected Kidney. lib 4	pCMVSPORT3.0	LP08
HMTM	PCR, pBMC I/C treated	PCR II	LP09
HMJA	H. Meningioma. M6	pSport 1	LP10
HMKA HMKB HMKC HMKD HMKE	H. Meningioma. M1	pSport 1	LP10
HUSG HUSI	Human umbilical vein endothelial cells. IL-4 induced	pSport 1	LP10
HUSX HUSY	Human Umbilical Vein Endothelial Cells. uninduced	pSport 1	LP10
HOFA	Ovarian Tumor I. OV5232	pSport 1	LP10
HCFA HCFB HCFC HCFD	T-Cell PHA 16 hrs	pSport 1	LP10
HCFL HCFM HCFN HCFO	T-Cell PHA 24 hrs	pSport 1	LP10
HADA HADC HADD HADE HADF HADG	Human Adipose	pSport 1	LP10
HOVA HOVB HOVC	Human Ovary	pSport 1	LP10
HTWB HTWC HTWD HTWE HTWF	Resting T-Cell Library.II	pSport 1	LP10

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HMMA	Spleen metastatic melanoma	pSport 1	LP10
HLYA HLYB HLYC HLYD HLYE	Spleen. Chronic lymphocytic leukemia	pSport 1	LP10
HCGA	CD34+ cell. 1	pSport 1	LP10
HEOM HEON	Human Eosinophils	pSport 1	LP10
HTDA	Human Tonsil. Lib 3	pSport 1	LP10
HSPA	Salivary Gland. Lib 2	pSport 1	LP10
HCHA HCHB HCHC	Breast Cancer cell line. MDA 36	pSport 1	LP10
HCHM HCHN	Breast Cancer Cell line. angiogenic	pSport 1	LP10
HCIA	Crohn's Disease	pSport 1	LP10
HDAA HDAB HDAC	HEL cell line	pSport 1	LP10
HABA	Human Astrocyte	pSport 1	LP10
HUFA HUFB HUFC	Ulcerative Colitis	pSport 1	LP10
HNTM	NTERA2 + retinoic acid. 14 days	pSport 1	LP10
HDQA	Primary Dendritic cells. CapFinder2. frac 1	pSport 1	LP10
HDQM	Primary Dendritic Cells. CapFinder. frac 2	pSport 1	LP10
HLDX	Human Liver. normal. CapFinder	pSport 1	LP10
HULA HULB HULC	Human Dermal Endothelial Cells. untreated	pSport1	LP10
HUMA	Human Dermal Endothelial cells. treated	pSport1	LP10
HCJA	Human Stromal Endometrial fibroblasts. untreated	pSport1	LP10
HCJM	Human Stromal endometrial fibroblasts. treated w/ estradiol	pSport1	LP10
HEDA	Human Stromal endometrial fibroblasts. treated with progesterone	pSport1	LP10
HFNA	Human ovary tumor cell OV350721	pSport1	LP10
HKGA HKGB HKGC HKGD	Merkel Cells	pSport1	LP10
HISA HISB HISC	Pancreas Islet Cell Tumor	pSport1	LP10
HLSA	Skin. burned	pSport1	LP10
HBZA	Prostate. BPH. Lib 2	pSport 1	LP10
HBZS	Prostate BPH. Lib 2, subtracted	pSport 1	LP10
HFIA HFIB HFIC	Synovial Fibroblasts (control)	pSport 1	LP10
HFIH HFII HFII	Synovial hypoxia	pSport 1	LP10
HFIT HFIU HFIV	Synovial IL-1/TNF stimulated	pSport 1	LP10
HGCA	Mesangial cell. frac 1	pSport1	LP10
HMVA HMVB HMVC	Bone Marrow Stromal Cell. untreated	pSport1	LP10
HFIX HFY HFIZ	Synovial Fibroblasts (IL1/TNF). sub	pSport1	LP10
HFOX HFOY HFOZ	Synovial hypoxia-RSF subtracted	pSport1	LP10
HMQA HMQB HMQC HMQD	Human Activated Monocytes	Uni-ZAP XR	LP11
HLIA HLIB HLIC	Human Liver	pCMV Sport 1	LP012
HHBA HHBB HHBC HHBD HHBE	Human Heart	pCMV Sport 1	LP012
HBBA HBBB	Human Brain	pCMV Sport 1	LP012
HLJA HLJB HLJC HLJD HLJE	Human Lung	pCMV Sport 1	LP012
HOGA HOGB HOGC	Ovarian Tumor	pCMV Sport 2.0	LP012

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HTJM	Human Tonsils. Lib 2	pCMVSPORT 2.0	LP012
HAMF HAMG	KMH2	pCMVSPORT 3.0	LP012
HABA HAJB HAJC	L428	pCMVSPORT 3.0	LP012
HWBA HWBB HWBC HWBD HWBE	Dendritic cells. pooled	pCMVSPORT 3.0	LP012
HWAA HWAB HWAC HWAD HWAE	Human Bone Marrow. treated	pCMVSPORT 3.0	LP012
HYAA HYAB HYAC	B Cell lymphoma	pCMVSPORT 3.0	LP012
HWHG HWHH HWHI	Healing groin wound. 6.5 hours post incision	pCMVSPORT 3.0	LP012
HWHP HWHQ HWHR	Healing groin wound: 7.5 hours post incision	pCMVSPORT 3.0	LP012
HARM	Healing groin wound - zero hr post-incision (control)	pCMVSPORT 3.0	LP012
HBIM	Olfactory epithelium: nasalcavity	pCMVSPORT 3.0	LP012
HWDA	Healing Abdomen wound: 70&90 min post incision	pCMVSPORT 3.0	LP012
HWEA	Healing Abdomen Wound:15 days post incision	pCMVSPORT 3.0	LP012
HWJA	Healing Abdomen Wound:21&29 days	pCMVSPORT 3.0	LP012
HNAL	Human Tongue. frac 2	pSport1	LP012
HMJA	H. Meningima. M6	pSport1	LP012
HMKA HMKB HMKC HMKD HMKE	H. Meningima. M1	pSport1	LP012
HOFA	Ovarian Tumor I. OV5232	pSport1	LP012
HCFA HCFB HCFC HCFD	T-Cell PHA 16 hrs	pSport1	LP012
HCFL HCFM HCFN HCFO	T-Cell PHA 24 hrs	pSport1	LP012
HMMA HMMB HMMC	Spleen metastatic melanoma	pSport1	LP012
HTDA	Human Tonsil. Lib 3	pSport1	LP012
HDBA	Human Fetal Thymus	pSport1	LP012
HDDA	Pericardium	pSport1	LP012
HBZA	Prostate.BPH. Lib 2	pSport1	LP012
HWCA	Larynx tumor	pSport1	LP012
HWKA	Normal lung	pSport1	LP012
HSMB	Bone marrow stroma.treated	pSport1	LP012
HBHM	Normal trachea	pSport1	LP012
HLFC	Human Larynx	pSport1	LP012
HLRB	Siebben Polypsis	pSport1	LP012
HNIA	Mammary Gland	pSport1	LP012
HNJB	Palate carcinoma	pSport1	LP012
HNKA	Palate normal	pSport1	LP012
HMZA	Pharynx carcinoma	pSport1	LP012
HABG	Cheek Carcinoma	pSport1	LP012
HMZM	Pharynx Carcinoma	pSport1	LP012
HDRM	Larynx Carcinoma	pSport1	LP012
HVAA	Pancreas normal PCA4 No	pSport1	LP012
HICA	Tongue carcinoma	pSport1	LP012
HUKA HUKB HUKC HUKD HUKF	Human Uterine Cancer	Lambda ZAP II	LP013
HFFA	Human Fetal Brain. random primed	Lambda ZAP II	LP013
HTUA	Activated T-cell labeled with 4-thioluri	Lambda ZAP II	LP013
HBQA	Early Stage Human Brain. random primed	Lambda ZAP II	LP013



Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HMEB	Human microvascular Endothelial cells, fract. B	Lambda ZAP II	LP013
HUSH	Human Umbilical Vein Endothelial cells, fract. A, re-excision	Lambda ZAP II	LP013
HLQC HLQD	Hepatocellular tumor, re-excision	Lambda ZAP II	LP013
HTWJ HTWK HTWL	Resting T-cell, re-excision	Lambda ZAP II	LP013
HF6S	Human Whole 6 week Old Embryo (II), sub1	pBluescript	LP013
HHPS	Human Hippocampus, subtracted	pBluescript	LP013
HL1S	LNCAP, differential expression	pBluescript	LP013
HLHS HLHT	Early Stage Human Lung, Subtracted	pBluescript	LP013
HSUS	Supt cells, cyclohexamide treated, subtracted	pBluescript	LP013
HSUT	Supt cells, cyclohexamide treated, differentially expressed	pBluescript	LP013
HSDS	H. Striatum Depression, subtracted	pBluescript	LP013
HPTZ	Human Pituitary, Subtracted VII	pBluescript	LP013
HSDX	H. Striatum Depression, sub1 II	pBluescript	LP013
HSDZ	H. Striatum Depression, sub1	pBluescript	LP013
HPBA HPBB HPBC HPBD HPBE	Human Pincal Gland	pBluescript SK-	LP013
HRTA	Colorectal Tumor	pBluescript SK-	LP013
HSBA HSBB HSBC HSBM	HSC172 cells	pBluescript SK-	LP013
HJAA HJAB HJAC HJAD	Jurkat T-cell G1 phase	pBluescript SK-	LP013
HJBA HJBB HJBC HJBD	Jurkat T-cell, S1 phase	pBluescript SK-	LP013
HTNA HTNB	Human Thyroid	pBluescript SK-	LP013
HAHA HAHB	Human Adult Heart	Uni-ZAP XR	LP013
HE6A	Whole 6 week Old Embryo	Uni-ZAP XR	LP013
HFCA HFCE HFCC HFCD HFCE	Human Fetal Brain	Uni-ZAP XR	LP013
HFKE HFKE HFKE HFKE HFKE	Human Fetal Kidney	Uni-ZAP XR	LP013
HGBA HGBD HGBE HGBF HGBG	Human Gall Bladder	Uni-ZAP XR	LP013
HPRA HPRB HPRC HPRD	Human Prostate	Uni-ZAP XR	LP013
HTEA HTEB HTEC HTEC HTEC	Human Testes	Uni-ZAP XR	LP013
HTTA HTTB HTTC HTTD HTTE	Human Testes Tumor	Uni-ZAP XR	LP013
HYBA HYBB	Human Fetal Bone	Uni-ZAP XR	LP013
HFLA	Human Fetal Liver	Uni-ZAP XR	LP013
HHFB HHFC HHFD HHFE HHFF	Human Fetal Heart	Uni-ZAP XR	LP013
HUVB HUVB HUVB HUVB	Human Umbilical Vein, End. remake	Uni-ZAP XR	LP013
HTHB HTHC HTHD	Human Thymus	Uni-ZAP XR	LP013
HSTA HSTB HSTC HSTD	Human Skin Tumor	Uni-ZAP XR	LP013
HTAA HTAB HTAC HTAD HTAE	Human Activated T-cells	Uni-ZAP XR	LP013
HFEA HFEB HFEC	Human Fetal Epithelium (skin)	Uni-ZAP XR	LP013
HJPA HJPB HJPC HJPD	Human Jurkat Membrane Bound Polysomes	Uni-ZAP XR	LP013
HESA	Human Epithelioid Sarcoma	Uni-ZAP XR	LP013
HALS	Human Adult Liver, Subtracted	Uni-ZAP XR	LP013
HFTA HFTB HFTC HFTD	Human Fetal Dura Mater	Uni-ZAP XR	LP013
HCAA HCAB HCAC	Cem clls, cyclohexamide treated	Uni-ZAP XR	LP013
HRGA HRGB HRGC HRGD	Raji Cells, cyclohexamide treated	Uni-ZAP XR	LP013
HE9A HE9B HE9C HE9D HE9E	Nine Week Old Early Stage Human	Uni-ZAP XR	LP013

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HSFA	Human Fibrosarcoma	Uni-ZAP XR	LP013
HATA HATB HATC HATD HATE	Human Adrenal Gland Tumor	Uni-ZAP XR	LP013
HTRA	Human Trachea Tumor	Uni-ZAP XR	LP013
HE2A HE2D HE2E HE2H HE2I	12 Week Old Early Stage Human	Uni-ZAP XR	LP013
HE2B HE2C HE2F HE2G HE2P	12 Week Old Early Stage Human. II	Uni-ZAP XR	LP013
HNEA HNEB HNEC HNED HNEE	Human Neutrophil	Uni-ZAP XR	LP013
HBGA	Human Primary Breast Cancer	Uni-ZAP XR	LP013
HPTS HPTT HPTU	Human Pituitary. subtracted	Uni-ZAP XR	LP013
HMQA HMQB HMOC HMQD	Human Activated Monocytes	Uni-ZAP XR	LP013
HOAA HOAB HOAC	Human Osteosarcoma	Uni-ZAP XR	LP013
HTOA HTOD HTOE HTOF HTOG	human tonsils	Uni-ZAP XR	LP013
HMGB	Human OB MG63 control fraction I	Uni-ZAP XR	LP013
HOPB	Human OB HOS control fraction I	Uni-ZAP XR	LP013
HOQB	Human OB HOS treated (1 nM E2) fraction I	Uni-ZAP XR	LP013
HAUA HAUB HAUC	Amniotic Cells - TNF induced	Uni-ZAP XR	LP013
HAQA HAQB HAQC HAQD	Amniotic Cells - Primary Culture	Uni-ZAP XR	LP013
HROA HROC	HUMAN STOMACH	Uni-ZAP XR	LP013
HBJA HBJB HBJC HBJD HBJE	HUMAN B CELL LYMPHOMA	Uni-ZAP XR	LP013
HODA HODB HODC HODD	human ovarian cancer	Uni-ZAP XR	LP013
HCPA	Corpus Callosum	Uni-ZAP XR	LP013
HSOA	stomach cancer (human)	Uni-ZAP XR	LP013
HERA	SKIN	Uni-ZAP XR	LP013
HMDA	Brain-medulloblastoma	Uni-ZAP XR	LP013
HGLA HGLB HGLD	Glioblastoma	Uni-ZAP XR	LP013
HWTA HWTB HWTC	wilm's tumor	Uni-ZAP XR	LP013
HEAA	H. Atrophic Endometrium	Uni-ZAP XR	LP013
HAPN HAPO HAPB HAPQ HAPR	Human Adult Pulmonary:re-excision	Uni-ZAP XR	LP013
HLTG HLTH	Human T-cell lymphoma:re-excision	Uni-ZAP XR	LP013
HAHC HAHD HAHE	Human Adult Heart:re-excision	Uni-ZAP XR	LP013
HAGA HAGB HAGC HAGD HAGE	Human Amygdala	Uni-ZAP XR	LP013
HSJA HSJB HSJC	Smooth muscle-ILb induced	Uni-ZAP XR	LP013
HSJA HSJB HSJC	Smooth muscle. IL1b induced	Uni-ZAP XR	LP013
HPWA HPWB HPWC HPWD HPWE	Prostate BPH	Uni-ZAP XR	LP013
HPIA HPIB HPIC	LNCAP prostate cell line	Uni-ZAP XR	LP013
HPJA HPJB HPJC	PC3 Prostate cell line	Uni-ZAP XR	LP013
HBTA	Bone Marrow Stroma. TNF&LPS ind	Uni-ZAP XR	LP013
HMCF HMCG HMCH HMCJ HMCJ	Macrophage-oxLDL: re-excision	Uni-ZAP XR	LP013
HAGG HAGH HAGI	Human Amygdala:re-excision	Uni-ZAP XR	LP013
HACA	H. Adipose Tissue	Uni-ZAP XR	LP013
HKFB	K562 + PMA (36 hrs).re-excision	ZAP Express	LP013
HCWT HCWU HCWV	CD34 positive cells (cord blood).re-ex	ZAP Express	LP013
HBWA	Whole brain	ZAP Express	LP013
HBXA HBXB HBXC HBXD	Human Whole Brain #2 - Oligo dT > 1.5Kb	ZAP Express	LP013
HAVM	Temporal cortex-Alzheimer	pT-Adv	LP014
HAVT	Hippocampus. Alzheimer Subtracted	pT-Adv	LP014

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HHAS	CHME Cell Line	Uni-ZAP XR	LP014
HAJR	Larynx normal	pSport 1	LP014
HWLE HWLF HWLG HWLH	Colon Normal	pSport 1	LP014
HCRM HCRN HCRO	Colon Carcinoma	pSport 1	LP014
HWLI HWLJ HWLK	Colon Normal	pSport 1	LP014
HWLQ HWLR HWLS HWLT	Colon Tumor	pSport 1	LP014
HBFM	Gastrocnemius Muscle	pSport 1	LP014
HBOD HBOE	Quadriceps Muscle	pSport 1	LP014
HBKD HBKE	Soleus Muscle	pSport 1	LP014
HCCM	Pancreatic Langerhans	pSport 1	LP014
HWGA	Larynx carcinoma	pSport 1	LP014
HWGM HWGN	Larynx carcinoma	pSport 1	LP014
HWLA HWLB HWLC	Normal colon	pSport 1	LP014
HWLM HWLN	Colon Tumor	pSport 1	LP014
HVAM HVAN HVAO	Pancreas Tumor	pSport 1	LP014
HWGO	Larynx carcinoma	pSport 1	LP014
HAQM HAQN	Salivary Gland	pSport 1	LP014
HASM	Stomach: normal	pSport 1	LP014
HBCM	Uterus: normal	pSport 1	LP014
HCDM	Testis: normal	pSport 1	LP014
HDJM	Brain: normal	pSport 1	LP014
HEFM	Adrenal Gland: normal	pSport 1	LP014
HBAA	Rectum normal	pSport 1	LP014
HFDM	Rectum tumour	pSport 1	LP014
HGAM	Colon, normal	pSport 1	LP014
HHMM	Colon, tumour	pSport 1	LP014
HCLB HCLC	Human Lung Cancer	Lambda Zap II	LP015
HRLA	L1 Cell line	ZAP Express	LP015
HHAM	Hypothalamus, Alzheimer's	pCMVSPORT 3.0	LP015
HKBA	Ku 812F Basophils Line	pSport 1	LP015
HS2S	Saos2, Dexamethosone Treated	pSport 1	LP016
HASA	Lung Carcinoma A549 TNFalpha activated	pSport 1	LP016
HTFM	TF-1 Cell Line GM-CSF Treated	pSport 1	LP016
HYAS	Thyroid Tumour	pSport 1	LP016
HUTS	Larynx Normal	pSport 1	LP016
HXOA	Larynx Tumor	pSport 1	LP016
HEAH	Ea.hy.926 cell line	pSport 1	LP016
HINA	Adenocarcinoma Human	pSport 1	LP016
HRMA	Lung Mesothelium	pSport 1	LP016
HLCL	Human Pre-Differentiated Adipocytes	Uni-Zap XR	LP017
HS2A	Saos2 Cells	pSport 1	LP020
HS2I	Saos2 Cells: Vitamin D3 Treated	pSport 1	LP020
HUCM	CHME Cell Line, untreated	pSport 1	LP020
HEPN	Aryepiglottis Normal	pSport 1	LP020
HPSN	Sinus Piniformis Tumour	pSport 1	LP020
HNSA	Stomach Normal	pSport 1	LP020

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HNSM	Stomach Tumour	pSport 1	LP020
HNLA	Liver Normal Met5No	pSport 1	LP020
HUTA	Liver Tumour Met 5 Tu	pSport 1	LP020
HOCN	Colon Normal	pSport 1	LP020
HOCT	Colon Tumor	pSport 1	LP020
HTNT	Tongue Tumour	pSport 1	LP020
HLXN	Larynx Normal	pSport 1	LP020
HLXT	Larynx Tumour	pSport 1	LP020
HTYN	Thymus	pSport 1	LP020
HPLN	Placenta	pSport 1	LP020
HTNG	Tongue Normal	pSport 1	LP020
HZAA	Thyroid Normal (SDCA2 No)	pSport 1	LP020
HWES	Thyroid Thyroiditis	pSport 1	LP020
HFHD	Ficoll Human Stromal Cells, 5Fu treated	pTrip1Ex2	LP021
HFHM.HFHN	Ficoll Human Stromal Cells, Untreated	pTrip1Ex2	LP021
HPCI	Hep G2 Cells. lambda library	lambda Zap-CMV XR	LP021
HBCA.HBCB.HBCC	H. Lymph node breast Cancer	Uni-ZAP XR	LP021
HCOK	Chondrocytes	pSPORT1	LP022
HDCA. HDCB. HDCC	Dendritic Cells From CD34 Cells	pSPORT1	LP022
HDMA. HDMB	CD40 activated monocyte dendritic cells	pSPORT1	LP022
HDDM. HDDN. HDDO	LPS activated derived dendritic cells	pSPORT1	LP022
HPCR	Hep G2 Cells. PCR library	lambda Zap-CMV XR	LP022
HAAA. HAAB. HAAC	Lung. Cancer (4005313A3): Invasive Poorly Differentiated Lung Adenocarcinoma	pSPORT1	LP022
HIPA. HIPB. HIPC	Lung, Cancer (4005163 B7): Invasive, Poorly Diff. Adenocarcinoma, Metastatic	pSPORT1	LP022
HOOH. HOOI	Ovary. Cancer: (4004562 B6) Papillary Serous Cystic Neoplasm, Low Malignant Pot	pSPORT1	LP022
HIDA	Lung, Normal: (4005313 B1)	pSPORT1	LP022
HUJA.HUJB.HUJC.HUJD.HUJE	B-Cells	pCMVSPORT 3.0	LP022
HNOA.HNOB.HNOC.HNOD	Ovary. Normal: (9805C040R)	pSPORT1	LP022
HNLM	Lung, Normal: (4005313 B1)	pSPORT1	LP022
HSCL	Stromal Cells	pSPORT1	LP022
HAAX	Lung, Cancer: (4005313 A3) Invasive Poorly-differentiated Metastatic lung adenocarcinoma	pSPORT1	LP022
HUUA.HUUB.HUUC.HUUD	B-cells (unstimulated)	pTrip1Ex2	LP022
HWWA.HWWB.HWWC.HWWD.HWWE.HWWF.HWWG	B-cells (stimulated)	pSPORT1	LP022
HCCC	Colon. Cancer: (9808C064R)	pCMVSPORT 3.0	LP023
HPDO HPDP HPDQ HPDR HPD	Ovary, Cancer (9809C332): Poorly differentiated adenocarcinoma	pSport 1	LP023
HPCO HPCP HPCQ HPCT	Ovary. Cancer (15395A1F): Grade II Papillary Carcinoma	pSport 1	LP023
HOCM HOCO HOCQ HOCQ	Ovary. Cancer: (15799A1F) Poorly differentiated carcinoma	pSport 1	LP023

Libraries owned by Catalog	Catalog Description	Vector	ATCC Deposit
HCBM HCBN HCBO	Breast. Cancer: (4004943 A5)	pSport 1	LP023
HNBT HNBH HNBV	Breast. Normal: (4005522B2)	pSport 1	LP023
HBCP HBCQ	Breast. Cancer: (4005522 A2)	pSport 1	LP023
HBCJ	Breast. Cancer: (9806C012R)	pSport 1	LP023
HSAM HSAN	Stromal cells 3.88	pSport 1	LP023
HVCA HVCB HVCC HVCD	Ovary. Cancer: (4004332 A2)	pSport 1	LP023
HSCK HSEN HSEO	Stromal cells (HBM3.18)	pSport 1	LP023
HSCP HSCQ	stromal cell clone 2.5	pSport 1	LP023
HUXA	Breast Cancer: (4005385 A2)	pSport 1	LP023
HCOM HCON HCOO HCOP HCOQ	Ovary. Cancer (4004650 A3): Well-Differentiated Micropapillary Serous Carcinoma	pSport 1	LP023
HBNM	Breast. Cancer: (9802C020E)	pSport 1	LP023
HVVA HVVB HVVC HVVD HVVE	Human Bone Marrow. treated	pSport 1	LP023

Two approaches can be used to isolate a particular clone from the deposited sample of plasmid DNAs cited for that clone in Table 5. First, a plasmid is directly isolated by screening the clones using a polynucleotide probe corresponding to the nucleotide sequence of SEQ ID NO:X.

5            Particularly, a specific polynucleotide with 30-40 nucleotides is synthesized using an Applied Biosystems DNA synthesizer according to the sequence reported. The oligonucleotide is labeled, for instance, with  $^{32}\text{P}$ - $\gamma$ -ATP using T4 polynucleotide kinase and purified according to routine methods. (E.g., Maniatis et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Press, Cold Spring, NY (1982).) The plasmid  
10           mixture is transformed into a suitable host, as indicated above (such as XL-1 Blue (Stratagene)) using techniques known to those of skill in the art, such as those provided by the vector supplier or in related publications or patents cited above. The transformants are plated on 1.5% agar plates (containing the appropriate selection agent, e.g., ampicillin) to a density of about 150 transformants (colonies) per plate. These plates are screened using  
15           Nylon membranes according to routine methods for bacterial colony screening (e.g., Sambrook et al., *Molecular Cloning: A Laboratory Manual*, 2nd Edit., (1989), Cold Spring Harbor Laboratory Press, pages 1.93 to 1.104), or other techniques known to those of skill in the art.

             Alternatively, two primers of 17-20 nucleotides derived from both ends of the  
20           nucleotide sequence of SEQ ID NO:X are synthesized and used to amplify the desired cDNA using the deposited cDNA plasmid as a template. The polymerase chain reaction is carried out under routine conditions, for instance, in 25  $\mu\text{l}$  of reaction mixture with 0.5  $\mu\text{g}$  of the above cDNA template. A convenient reaction mixture is 1.5-5 mM  $\text{MgCl}_2$ , 0.01% (w/v) gelatin, 20  $\mu\text{M}$  each of dATP, dCTP, dGTP, dTTP, 25 pmol of each primer and 0.25 Unit of  
25           Taq polymerase. Thirty five cycles of PCR (denaturation at 94°C for 1 min; annealing at 55°C for 1 min; elongation at 72°C for 1 min) are performed with a Perkin-Elmer Cetus automated thermal cycler. The amplified product is analyzed by agarose gel electrophoresis and the DNA band with expected molecular weight is excised and purified. The PCR product is verified to be the selected sequence by subcloning and sequencing the DNA  
30           product.

             Several methods are available for the identification of the 5' or 3' non-coding portions of a gene which may not be present in the deposited clone. These methods include but are not

limited to, filter probing, clone enrichment using specific probes, and protocols similar or identical to 5' and 3' "RACE" protocols which are well known in the art. For instance, a method similar to 5' RACE is available for generating the missing 5' end of a desired full-length transcript. (Fromont-Racine et al., Nucleic Acids Res. 21(7):1683-1684 (1993).)

5 Briefly, a specific RNA oligonucleotide is ligated to the 5' ends of a population of RNA presumably containing full-length gene RNA transcripts. A primer set containing a primer specific to the ligated RNA oligonucleotide and a primer specific to a known sequence of the gene of interest is used to PCR amplify the 5' portion of the desired full-length gene. This amplified product may then be sequenced and used to generate the full  
10 length gene.

This above method starts with total RNA isolated from the desired source, although poly-A+ RNA can be used. The RNA preparation can then be treated with phosphatase if necessary to eliminate 5' phosphate groups on degraded or damaged RNA which may interfere with the later RNA ligase step. The phosphatase should then be inactivated and the  
15 RNA treated with tobacco acid pyrophosphatase in order to remove the cap structure present at the 5' ends of messenger RNAs. This reaction leaves a 5' phosphate group at the 5' end of the cap cleaved RNA which can then be ligated to an RNA oligonucleotide using T4 RNA ligase.

This modified RNA preparation is used as a template for first strand cDNA synthesis  
20 using a gene specific oligonucleotide. The first strand synthesis reaction is used as a template for PCR amplification of the desired 5' end using a primer specific to the ligated RNA oligonucleotide and a primer specific to the known sequence of the gene of interest. The resultant product is then sequenced and analyzed to confirm that the 5' end sequence belongs to the desired gene.

### 25 ***Example 2: Isolation of Genomic Clones Corresponding to a Polynucleotide***

A human genomic P1 library (Genomic Systems, Inc.) is screened by PCR using primers selected for the sequence corresponding to SEQ ID NO:X, according to the method  
30 described in Example 1. (See also, Sambrook.)

***Example 3: Tissue specific expression analysis***

The Human Genome Sciences, Inc. (HGS) database is derived from sequencing tissue specific cDNA libraries. Libraries generated from a particular tissue are selected and the specific tissue expression pattern of EST groups or assembled contigs within these libraries is determined by comparison of the expression patterns of those groups or contigs within the entire database. ESTs which show tissue specific expression are selected.

The original clone from which the specific EST sequence was generated, is obtained from the catalogued library of clones and the insert amplified by PCR using methods known in the art. The PCR product is denatured then transferred in 96 well format to a nylon membrane (Schleicher and Schuell) generating an array filter of tissue specific clones. Housekeeping genes, maize genes, and known tissue specific genes are included on the filters. These targets can be used in signal normalization and to validate assay sensitivity. Additional targets are included to monitor probe length and specificity of hybridization.

Radioactively labeled hybridization probes are generated by first strand cDNA synthesis per the manufacturer's instructions (Life Technologies) from mRNA/RNA samples prepared from the specific tissue being analyzed. The hybridization probes are purified by gel exclusion chromatography, quantitated, and hybridized with the array filters in hybridization bottles at 65°C overnight. The filters are washed under stringent conditions and signals are captured using a Fuji phosphorimager.

Data is extracted using AIS software and following background subtraction, signal normalization is performed. This includes a normalization of filter-wide expression levels between different experimental runs. Genes that are differentially expressed in the tissue of interest are identified and the full length sequence of these clones is generated.

***Example 4: Chromosomal Mapping of the Polynucleotides***

An oligonucleotide primer set is designed according to the sequence at the 5' end of SEQ ID NO:X. This primer preferably spans about 100 nucleotides. This primer set is then used in a polymerase chain reaction under the following set of conditions : 30 seconds, 95°C; 1 minute, 56°C; 1 minute, 70°C. This cycle is repeated 32 times followed by one 5 minute



cycle at 70°C. Human, mouse, and hamster DNA is used as template in addition to a somatic cell hybrid panel containing individual chromosomes or chromosome fragments (Bios, Inc). The reactions is analyzed on either 8% polyacrylamide gels or 3.5 % agarose gels. Chromosome mapping is determined by the presence of an approximately 100 bp PCR  
5 fragment in the particular somatic cell hybrid.

***Example 5: Bacterial Expression of a Polypeptide***

A polynucleotide encoding a polypeptide of the present invention is amplified using  
10 PCR oligonucleotide primers corresponding to the 5' and 3' ends of the DNA sequence, as outlined in Example 1, to synthesize insertion fragments. The primers used to amplify the cDNA insert should preferably contain restriction sites, such as BamHI and XbaI, at the 5' end of the primers in order to clone the amplified product into the expression vector. For example, BamHI and XbaI correspond to the restriction enzyme sites on the bacterial  
15 expression vector pQE-9. (Qiagen, Inc., Chatsworth, CA). This plasmid vector encodes antibiotic resistance (Amp<sup>r</sup>), a bacterial origin of replication (ori), an IPTG-regulatable promoter/operator (P/O), a ribosome binding site (RBS), a 6-histidine tag (6-His), and restriction enzyme cloning sites.

The pQE-9 vector is digested with BamHI and XbaI and the amplified fragment is  
20 ligated into the pQE-9 vector maintaining the reading frame initiated at the bacterial RBS. The ligation mixture is then used to transform the E. coli strain M15/rep4 (Qiagen, Inc.) which contains multiple copies of the plasmid pREP4, which expresses the lacI repressor and also confers kanamycin resistance (Kan<sup>r</sup>). Transformants are identified by their ability to grow on LB plates and ampicillin/kanamycin resistant colonies are selected. Plasmid DNA is  
25 isolated and confirmed by restriction analysis.

Clones containing the desired constructs are grown overnight (O/N) in liquid culture in LB media supplemented with both Amp (100 ug/ml) and Kan (25 ug/ml). The O/N culture is used to inoculate a large culture at a ratio of 1:100 to 1:250. The cells are grown to an optical density 600 (O.D.<sup>600</sup>) of between 0.4 and 0.6. IPTG (Isopropyl-B-D-thiogalacto  
30 pyranoside) is then added to a final concentration of 1 mM. IPTG induces by inactivating the lacI repressor, clearing the P/O leading to increased gene expression.

Cells are grown for an extra 3 to 4 hours. Cells are then harvested by centrifugation (20 mins at 6000Xg). The cell pellet is solubilized in the chaotropic agent 6 Molar Guanidine HCl by stirring for 3-4 hours at 4°C. The cell debris is removed by centrifugation, and the supernatant containing the polypeptide is loaded onto a nickel-nitrilo-tri-acetic acid ("Ni-NTA") affinity resin column (available from QIAGEN, Inc., *supra*). Proteins with a 6 x His tag bind to the Ni-NTA resin with high affinity and can be purified in a simple one-step procedure (for details see: The QIAexpressionist (1995) QIAGEN, Inc., *supra*).

Briefly, the supernatant is loaded onto the column in 6 M guanidine-HCl, pH 8, the column is first washed with 10 volumes of 6 M guanidine-HCl, pH 8, then washed with 10 volumes of 6 M guanidine-HCl pH 6, and finally the polypeptide is eluted with 6 M guanidine-HCl, pH 5.

The purified protein is then renatured by dialyzing it against phosphate-buffered saline (PBS) or 50 mM Na-acetate, pH 6 buffer plus 200 mM NaCl. Alternatively, the protein can be successfully refolded while immobilized on the Ni-NTA column. The recommended conditions are as follows: renature using a linear 6M-1M urea gradient in 500 mM NaCl, 20% glycerol, 20 mM Tris/HCl pH 7.4, containing protease inhibitors. The renaturation should be performed over a period of 1.5 hours or more. After renaturation the proteins are eluted by the addition of 250 mM imidazole. Imidazole is removed by a final dialyzing step against PBS or 50 mM sodium acetate pH 6 buffer plus 200 mM NaCl. The purified protein is stored at 4°C or frozen at -80°C.

In addition to the above expression vector, the present invention further includes an expression vector comprising phage operator and promoter elements operatively linked to a polynucleotide of the present invention, called pHE4a. (ATCC Accession Number 209645, deposited on February 25, 1998.) This vector contains: 1) a neomycinphosphotransferase gene as a selection marker, 2) an E. coli origin of replication, 3) a T5 phage promoter sequence, 4) two lac operator sequences, 5) a Shine-Delgarno sequence, and 6) the lactose operon repressor gene (*lacIq*). The origin of replication (*oriC*) is derived from pUC19 (LTI, Gaithersburg, MD). The promoter sequence and operator sequences are made synthetically.

DNA can be inserted into the pHEa by restricting the vector with NdeI and XbaI, BamHI, XhoI, or Asp718, running the restricted product on a gel, and isolating the larger fragment (the stuffer fragment should be about 310 base pairs). The DNA insert is generated according to the PCR protocol described in Example 1, using PCR primers having restriction

sites for NdeI (5' primer) and XbaI, BamHI, XhoI, or Asp718 (3' primer). The PCR insert is gel purified and restricted with compatible enzymes. The insert and vector are ligated according to standard protocols.

The engineered vector could easily be substituted in the above protocol to express  
5 protein in a bacterial system.

***Example 6: Purification of a Polypeptide from an Inclusion Body***

The following alternative method can be used to purify a polypeptide expressed in *E*  
10 *coli* when it is present in the form of inclusion bodies. Unless otherwise specified, all of the following steps are conducted at 4-10°C.

Upon completion of the production phase of the *E. coli* fermentation, the cell culture is cooled to 4-10°C and the cells harvested by continuous centrifugation at 15,000 rpm (Heraeus Sepatech). On the basis of the expected yield of protein per unit weight of cell  
15 paste and the amount of purified protein required, an appropriate amount of cell paste, by weight, is suspended in a buffer solution containing 100 mM Tris, 50 mM EDTA, pH 7.4. The cells are dispersed to a homogeneous suspension using a high shear mixer.

The cells are then lysed by passing the solution through a microfluidizer (Microfluidics, Corp. or APV Gaulin, Inc.) twice at 4000-6000 psi. The homogenate is then  
20 mixed with NaCl solution to a final concentration of 0.5 M NaCl, followed by centrifugation at 7000 xg for 15 min. The resultant pellet is washed again using 0.5M NaCl, 100 mM Tris, 50 mM EDTA, pH 7.4.

The resulting washed inclusion bodies are solubilized with 1.5 M guanidine hydrochloride (GuHCl) for 2-4 hours. After 7000 xg centrifugation for 15 min., the pellet is  
25 discarded and the polypeptide containing supernatant is incubated at 4°C overnight to allow further GuHCl extraction.

Following high speed centrifugation (30,000 xg) to remove insoluble particles, the GuHCl solubilized protein is refolded by quickly mixing the GuHCl extract with 20 volumes of buffer containing 50 mM sodium, pH 4.5, 150 mM NaCl, 2 mM EDTA by vigorous  
30 stirring. The refolded diluted protein solution is kept at 4°C without mixing for 12 hours prior to further purification steps.

To clarify the refolded polypeptide solution, a previously prepared tangential filtration unit equipped with 0.16  $\mu$ m membrane filter with appropriate surface area (e.g., Filtron), equilibrated with 40 mM sodium acetate, pH 6.0 is employed. The filtered sample is loaded onto a cation exchange resin (e.g., Poros HS-50, Perseptive Biosystems). The column is washed with 40 mM sodium acetate, pH 6.0 and eluted with 250 mM, 500 mM, 1000 mM, and 1500 mM NaCl in the same buffer, in a stepwise manner. The absorbance at 280 nm of the effluent is continuously monitored. Fractions are collected and further analyzed by SDS-PAGE.

Fractions containing the polypeptide are then pooled and mixed with 4 volumes of water. The diluted sample is then loaded onto a previously prepared set of tandem columns of strong anion (Poros HQ-50, Perseptive Biosystems) and weak anion (Poros CM-20, Perseptive Biosystems) exchange resins. The columns are equilibrated with 40 mM sodium acetate, pH 6.0. Both columns are washed with 40 mM sodium acetate, pH 6.0, 200 mM NaCl. The CM-20 column is then eluted using a 10 column volume linear gradient ranging from 0.2 M NaCl, 50 mM sodium acetate, pH 6.0 to 1.0 M NaCl, 50 mM sodium acetate, pH 6.5. Fractions are collected under constant  $A_{280}$  monitoring of the effluent. Fractions containing the polypeptide (determined, for instance, by 16% SDS-PAGE) are then pooled.

The resultant polypeptide should exhibit greater than 95% purity after the above refolding and purification steps. No major contaminant bands should be observed from Comma ssie blue stained 16% SDS-PAGE gel when 5  $\mu$ g of purified protein is loaded. The purified protein can also be tested for endotoxin/LPS contamination, and typically the LPS content is less than 0.1 ng/ml according to LAL assays.

#### *Example 7: Cloning and Expression of a Polypeptide in a Baculovirus Expression System*

In this example, the plasmid shuttle vector pA2 is used to insert a polynucleotide into a baculovirus to express a polypeptide. This expression vector contains the strong polyhedrin promoter of the *Autographa californica* nuclear polyhedrosis virus (AcMNPV) followed by convenient restriction sites such as BamHI, Xba I and Asp718. The polyadenylation site of the simian virus 40 ("SV40") is used for efficient polyadenylation. For easy selection of recombinant virus, the plasmid contains the beta-galactosidase gene from *E. coli* under control of a weak *Drosophila* promoter in the same orientation, followed by the

polyadenylation signal of the polyhedrin gene. The inserted genes are flanked on both sides by viral sequences for cell-mediated homologous recombination with wild-type viral DNA to generate a viable virus that express the cloned polynucleotide.

Many other baculovirus vectors can be used in place of the vector above, such as pAc373, pVL941, and pAcIM1, as one skilled in the art would readily appreciate, as long as the construct provides appropriately located signals for transcription, translation, secretion and the like, including a signal peptide and an in-frame AUG as required. Such vectors are described, for instance, in Luckow et al., *Virology* 170:31-39 (1989).

Specifically, the cDNA sequence contained in the deposited clone, including the AUG initiation codon, is amplified using the PCR protocol described in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the pA2 vector does not need a second signal peptide. Alternatively, the vector can be modified (pA2 GP) to include a baculovirus leader sequence, using the standard methods described in Summers et al., "A Manual of Methods for Baculovirus Vectors and Insect Cell Culture Procedures," Texas Agricultural Experimental Station Bulletin No. 1555 (1987).

The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("GeneClean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

The plasmid is digested with the corresponding restriction enzymes and optionally, can be dephosphorylated using calf intestinal phosphatase, using routine procedures known in the art. The DNA is then isolated from a 1% agarose gel using a commercially available kit ("GeneClean" BIO 101 Inc., La Jolla, Ca.).

The fragment and the dephosphorylated plasmid are ligated together with T4 DNA ligase. *E. coli* HB101 or other suitable *E. coli* hosts such as XL-1 Blue (Stratagene Cloning Systems, La Jolla, CA) cells are transformed with the ligation mixture and spread on culture plates. Bacteria containing the plasmid are identified by digesting DNA from individual colonies and analyzing the digestion product by gel electrophoresis. The sequence of the cloned fragment is confirmed by DNA sequencing.

Five  $\mu$ g of a plasmid containing the polynucleotide is co-transfected with 1.0  $\mu$ g of a commercially available linearized baculovirus DNA ("BaculoGold™ baculovirus DNA", Pharmingen, San Diego, CA), using the lipofection method described by Felgner et al., *Proc.*

Natl. Acad. Sci. USA 84:7413-7417 (1987). One  $\mu\text{g}$  of BaculoGold™ virus DNA and 5  $\mu\text{g}$  of the plasmid are mixed in a sterile well of a microtiter plate containing 50  $\mu\text{l}$  of serum-free Grace's medium (Life Technologies Inc., Gaithersburg, MD). Afterwards, 10  $\mu\text{l}$  Lipofectin plus 90  $\mu\text{l}$  Grace's medium are added, mixed and incubated for 15 minutes at room temperature. Then the transfection mixture is added drop-wise to Sf9 insect cells (ATCC CRL 1711) seeded in a 35 mm tissue culture plate with 1 ml Grace's medium without serum. The plate is then incubated for 5 hours at 27° C. The transfection solution is then removed from the plate and 1 ml of Grace's insect medium supplemented with 10% fetal calf serum is added. Cultivation is then continued at 27° C for four days.

After four days the supernatant is collected and a plaque assay is performed, as described by Summers and Smith, *supra*. An agarose gel with "Blue Gal" (Life Technologies Inc., Gaithersburg) is used to allow easy identification and isolation of gal-expressing clones, which produce blue-stained plaques. (A detailed description of a "plaque assay" of this type can also be found in the user's guide for insect cell culture and baculovirology distributed by Life Technologies Inc., Gaithersburg, page 9-10.) After appropriate incubation, blue stained plaques are picked with the tip of a micropipettor (e.g., Eppendorf). The agar containing the recombinant viruses is then resuspended in a microcentrifuge tube containing 200  $\mu\text{l}$  of Grace's medium and the suspension containing the recombinant baculovirus is used to infect Sf9 cells seeded in 35 mm dishes. Four days later the supernatants of these culture dishes are harvested and then they are stored at 4° C.

To verify the expression of the polypeptide, Sf9 cells are grown in Grace's medium supplemented with 10% heat-inactivated FBS. The cells are infected with the recombinant baculovirus containing the polynucleotide at a multiplicity of infection ("MOI") of about 2. If radiolabeled proteins are desired, 6 hours later the medium is removed and is replaced with SF900 II medium minus methionine and cysteine (available from Life Technologies Inc., Rockville, MD). After 42 hours, 5  $\mu\text{Ci}$  of  $^{35}\text{S}$ -methionine and 5  $\mu\text{Ci}$   $^{35}\text{S}$ -cysteine (available from Amersham) are added. The cells are further incubated for 16 hours and then are harvested by centrifugation. The proteins in the supernatant as well as the intracellular proteins are analyzed by SDS-PAGE followed by autoradiography (if radiolabeled).

Microsequencing of the amino acid sequence of the amino terminus of purified protein may be used to determine the amino terminal sequence of the produced protein.

*Example 8: Expression of a Polypeptide in Mammalian Cells*

The polypeptide of the present invention can be expressed in a mammalian cell. A typical mammalian expression vector contains a promoter element, which mediates the initiation of transcription of mRNA, a protein coding sequence, and signals required for the termination of transcription and polyadenylation of the transcript. Additional elements include enhancers, Kozak sequences and intervening sequences flanked by donor and acceptor sites for RNA splicing. Highly efficient transcription is achieved with the early and late promoters from SV40, the long terminal repeats (LTRs) from Retroviruses, e.g., RSV, HTLVI, HIVI and the early promoter of the cytomegalovirus (CMV). However, cellular elements can also be used (e.g., the human actin promoter).

Suitable expression vectors for use in practicing the present invention include, for example, vectors such as pSVL and pMSG (Pharmacia, Uppsala, Sweden), pRSVcat (ATCC 37152), pSV2dhfr (ATCC 37146), pBC12MI (ATCC 67109), pCMVSPORT 2.0, and pCMVSPORT 3.0. Mammalian host cells that could be used include, human Hela, 293, H9 and Jurkat cells, mouse NIH3T3 and C127 cells, Cos 1, Cos 7 and CV1, quail QC1-3 cells, mouse L cells and Chinese hamster ovary (CHO) cells.

Alternatively, the polypeptide can be expressed in stable cell lines containing the polynucleotide integrated into a chromosome. The co-transfection with a selectable marker such as DHFR, gpt, neomycin, hygromycin allows the identification and isolation of the transfected cells.

The transfected gene can also be amplified to express large amounts of the encoded protein. The DHFR (dihydrofolate reductase) marker is useful in developing cell lines that carry several hundred or even several thousand copies of the gene of interest. (See, e.g., Alt, F. W., et al., J. Biol. Chem. 253:1357-1370 (1978); Hamlin, J. L. and Ma, C., Biochem. et Biophys. Acta, 1097:107-143 (1990); Page, M. J. and Sydenham, M. A., Biotechnology 9:64-68 (1991).) Another useful selection marker is the enzyme glutamine synthase (GS) (Murphy et al., Biochem J. 227:277-279 (1991); Bebbington et al., Bio/Technology 10:169-175 (1992). Using these markers, the mammalian cells are grown in selective medium and the cells with the highest resistance are selected. These cell lines contain the amplified gene(s) integrated into a chromosome. Chinese hamster ovary (CHO) and NSO cells are often used for the production of proteins.

Derivatives of the plasmid pSV2-dhfr (ATCC Accession No. 37146), the expression vectors pC4 (ATCC Accession No. 209646) and pC6 (ATCC Accession No. 209647) contain the strong promoter (LTR) of the Rous Sarcoma Virus (Cullen et al., Molecular and Cellular Biology, 438-447 (March, 1985)) plus a fragment of the CMV-enhancer (Boshart et al., Cell 41:521-530 (1985).) Multiple cloning sites, e.g., with the restriction enzyme cleavage sites BamHI, XbaI and Asp718, facilitate the cloning of the gene of interest. The vectors also contain the 3' intron, the polyadenylation and termination signal of the rat preproinsulin gene, and the mouse DHFR gene under control of the SV40 early promoter.

Specifically, the plasmid pC6, for example, is digested with appropriate restriction enzymes and then dephosphorylated using calf intestinal phosphates by procedures known in the art. The vector is then isolated from a 1% agarose gel.

A polynucleotide of the present invention is amplified according to the protocol outlined in Example 1. If a naturally occurring signal sequence is used to produce the polypeptide of the present invention, the vector does not need a second signal peptide. Alternatively, if a naturally occurring signal sequence is not used, the vector can be modified to include a heterologous signal sequence. (See, e.g., WO 96/34891.)

The amplified fragment is isolated from a 1% agarose gel using a commercially available kit ("Geneclean," BIO 101 Inc., La Jolla, Ca.). The fragment then is digested with appropriate restriction enzymes and again purified on a 1% agarose gel.

The amplified fragment is then digested with the same restriction enzyme and purified on a 1% agarose gel. The isolated fragment and the dephosphorylated vector are then ligated with T4 DNA ligase. *E. coli* HB101 or XL-1 Blue cells are then transformed and bacteria are identified that contain the fragment inserted into plasmid pC6 using, for instance, restriction enzyme analysis.

Chinese hamster ovary cells lacking an active DHFR gene is used for transfection. Five  $\mu$ g of the expression plasmid pC6 or pC4 is cotransfected with 0.5  $\mu$ g of the plasmid pSVneo using lipofectin (Felgner et al., *supra*). The plasmid pSV2-neo contains a dominant selectable marker, the *neo* gene from Tn5 encoding an enzyme that confers resistance to a group of antibiotics including G418. The cells are seeded in alpha minus MEM supplemented with 1 mg/ml G418. After 2 days, the cells are trypsinized and seeded in hybridoma cloning plates (Greiner, Germany) in alpha minus MEM supplemented with 10, 25, or 50 ng/ml of methotrexate plus 1 mg/ml G418. After about 10-14 days single clones



are trypsinized and then seeded in 6-well petri dishes or 10 ml flasks using different concentrations of methotrexate (50 nM, 100 nM, 200 nM, 400 nM, 800 nM). Clones growing at the highest concentrations of methotrexate are then transferred to new 6-well plates containing even higher concentrations of methotrexate (1  $\mu$ M, 2  $\mu$ M, 5  $\mu$ M, 10 mM, 20 mM). The same procedure is repeated until clones are obtained which grow at a concentration of 100 - 200  $\mu$ M. Expression of the desired gene product is analyzed, for instance, by SDS-PAGE and Western blot or by reversed phase HPLC analysis.

#### *Example 9: Protein Fusions*

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The polypeptides of the present invention are preferably fused to other proteins. These fusion proteins can be used for a variety of applications. For example, fusion of the present polypeptides to His-tag, HA-tag, protein A, IgG domains, and maltose binding protein facilitates purification. (See Example 5; see also EP A 394,827; Traunecker, et al., Nature 331:84-86 (1988).) Similarly, fusion to IgG-1, IgG-3, and albumin increases the half-life time in vivo. Nuclear localization signals fused to the polypeptides of the present invention can target the protein to a specific subcellular localization, while covalent heterodimer or homodimers can increase or decrease the activity of a fusion protein. Fusion proteins can also create chimeric molecules having more than one function. Finally, fusion proteins can increase solubility and/or stability of the fused protein compared to the non-fused protein. All of the types of fusion proteins described above can be made by modifying the following protocol, which outlines the fusion of a polypeptide to an IgG molecule, or the protocol described in Example 5.

Briefly, the human Fc portion of the IgG molecule can be PCR amplified, using primers that span the 5' and 3' ends of the sequence described below. These primers also should have convenient restriction enzyme sites that will facilitate cloning into an expression vector, preferably a mammalian expression vector.

For example, if pC4 (Accession No. 209646) is used, the human Fc portion can be ligated into the BamHI cloning site. Note that the 3' BamHI site should be destroyed. Next, the vector containing the human Fc portion is re-restricted with BamHI, linearizing the vector, and a polynucleotide of the present invention, isolated by the PCR protocol described in Example 1, is ligated into this BamHI site. Note that the polynucleotide is cloned without

a stop codon. otherwise a fusion protein will not be produced.

If the naturally occurring signal sequence is used to produce the polypeptide of the present invention, pC4 does not need a second signal peptide. Alternatively, if the naturally occurring signal sequence is not used, the vector can be modified to include a heterologous  
5 signal sequence. (See, e.g., WO 96/34891.)

Human IgG Fc region:

GGGATCCGGAGCCCAAATCTTCTGACAAAACTCACACATGCCCACCGTGCCCAG  
CACCTGAATTCGAGGGTGCACCGTCAGTCTTCCTCTTCCCCCAAAACCCAAGGA  
10 CACCCTCATGATCTCCCGGACTCCTGAGGTACATGCGTGGTGGTGGACGTAAGC  
CACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCAT  
AATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGTGGTC  
AGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGAGTACAAGTGC  
AAGGTCTCCAACAAAGCCCTCCCAACCCCCATCGAGAAAACCATCTCCAAAGCC  
15 AAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCCCCCATCCCGGGATGAG  
CTGACCAAGAACCAGGTGAGCCTGACCTGCCTGGTCAAAGGCTTCTATCCAAGC  
GACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCGGAGAACAACACTACAAGAC  
CACGCCTCCCGTGCTGGACTCCGACGGCTCCTTCTTCCTCTACAGCAAGCTCACC  
GTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCAT  
20 GAGGCTCTGCACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAAT  
GAGTGCGACGGCCGCGACTCTAGAGGAT (SEQ ID NO:1881)

*Example 10: Production of an Antibody from a Polypeptide*

25 **a) Hybridoma Technology**

The antibodies of the present invention can be prepared by a variety of methods. (See, Current Protocols, Chapter 2.) As one example of such methods, cells expressing polypeptide of the present invention are administered to an animal to induce the production of sera containing polyclonal antibodies. In a preferred method, a preparation of polypeptide  
30 of the present invention is prepared and purified to render it substantially free of natural contaminants. Such a preparation is then introduced into an animal in order to produce polyclonal antisera of greater specific activity.

Monoclonal antibodies specific for polypeptide of the present invention are prepared using hybridoma technology. (Kohler et al., *Nature* 256:495 (1975); Kohler et al., *Eur. J. Immunol.* 6:511 (1976); Kohler et al., *Eur. J. Immunol.* 6:292 (1976); Hammerling et al., in: *Monoclonal Antibodies and T-Cell Hybridomas*, Elsevier, N.Y., pp. 563-681 (1981)). In general, an animal (preferably a mouse) is immunized with polypeptide of the present invention or, more preferably, with a secreted polypeptide of the present invention-expressing cell. Such polypeptide-expressing cells are cultured in any suitable tissue culture medium, preferably in Earle's modified Eagle's medium supplemented with 10% fetal bovine serum (inactivated at about 56°C), and supplemented with about 10 g/l of nonessential amino acids, about 1,000 U/ml of penicillin, and about 100 µg/ml of streptomycin.

The splenocytes of such mice are extracted and fused with a suitable myeloma cell line. Any suitable myeloma cell line may be employed in accordance with the present invention; however, it is preferable to employ the parent myeloma cell line (SP2O), available from the ATCC. After fusion, the resulting hybridoma cells are selectively maintained in HAT medium, and then cloned by limiting dilution as described by Wands et al. (*Gastroenterology* 80:225-232 (1981)). The hybridoma cells obtained through such a selection are then assayed to identify clones which secrete antibodies capable of binding the polypeptide of the present invention.

Alternatively, additional antibodies capable of binding to polypeptide of the present invention can be produced in a two-step procedure using anti-idiotypic antibodies. Such a method makes use of the fact that antibodies are themselves antigens, and therefore, it is possible to obtain an antibody which binds to a second antibody. In accordance with this method, protein specific antibodies are used to immunize an animal, preferably a mouse. The splenocytes of such an animal are then used to produce hybridoma cells, and the hybridoma cells are screened to identify clones which produce an antibody whose ability to bind to the polypeptide of the present invention-specific antibody can be blocked by polypeptide of the present invention. Such antibodies comprise anti-idiotypic antibodies to the polypeptide of the present invention-specific antibody and are used to immunize an animal to induce formation of further polypeptide of the present invention-specific antibodies.

For in vivo use of antibodies in humans, an antibody is "humanized". Such antibodies can be produced using genetic constructs derived from hybridoma cells producing the monoclonal antibodies described above. Methods for producing chimeric and humanized

antibodies are known in the art and are discussed herein. (See, for review, Morrison, Science 229:1202 (1985); Oi et al., BioTechniques 4:214 (1986); Cabilly et al., U.S. Patent No. 4,816,567; Taniguchi et al., EP 171496; Morrison et al., EP 173494; Neuberger et al., WO 8601533; Robinson et al., WO 8702671; Boulianne et al., Nature 312:643 (1984); Neuberger et al., Nature 314:268 (1985).)

**b) Isolation Of Antibody Fragments Directed Against Polypeptide of the Present Invention From A Library Of scFvs**

Naturally occurring V-genes isolated from human PBLs are constructed into a library of antibody fragments which contain reactivities against polypeptide of the present invention to which the donor may or may not have been exposed (see e.g., U.S. Patent 5,885,793 incorporated herein by reference in its entirety).

*Rescue of the Library.* A library of scFvs is constructed from the RNA of human PBLs as described in PCT publication WO 92/01047. To rescue phage displaying antibody fragments, approximately 109 E. coli harboring the phagemid are used to inoculate 50 ml of 2xTY containing 1% glucose and 100 µg/ml of ampicillin (2xTY-AMP-GLU) and grown to an O.D. of 0.8 with shaking. Five ml of this culture is used to inoculate 50 ml of 2xTY-AMP-GLU, 2 x 10<sup>8</sup> TU of delta gene 3 helper (M13 delta gene III, see PCT publication WO 92/01047) are added and the culture incubated at 37°C for 45 minutes without shaking and then at 37°C for 45 minutes with shaking. The culture is centrifuged at 4000 r.p.m. for 10 min. and the pellet resuspended in 2 liters of 2xTY containing 100 µg/ml ampicillin and 50 µg/ml kanamycin and grown overnight. Phage are prepared as described in PCT publication WO 92/01047.

M13 delta gene III is prepared as follows: M13 delta gene III helper phage does not encode gene III protein, hence the phage(mid) displaying antibody fragments have a greater avidity of binding to antigen. Infectious M13 delta gene III particles are made by growing the helper phage in cells harboring a pUC19 derivative supplying the wild type gene III protein during phage morphogenesis. The culture is incubated for 1 hour at 37° C without shaking and then for a further hour at 37°C with shaking. Cells are spun down (IEC-Centra 8,400 r.p.m. for 10 min), resuspended in 300 ml 2xTY broth containing 100 µg ampicillin/ml and 25 µg kanamycin/ml (2xTY-AMP-KAN) and grown overnight, shaking at 37°C. Phage particles are purified and concentrated from the culture medium by two PEG-precipitations

(Sambrook et al., 1990), resuspended in 2 ml PBS and passed through a 0.45  $\mu$ m filter (Minisart NML; Sartorius) to give a final concentration of approximately 10<sup>13</sup> transducing units/ml (ampicillin-resistant clones).

*Panning of the Library.* Immunotubes (Nunc) are coated overnight in PBS with 4 ml of either 100  $\mu$ g/ml or 10  $\mu$ g/ml of a polypeptide of the present invention. Tubes are blocked with 2% Marvel-PBS for 2 hours at 37°C and then washed 3 times in PBS. Approximately 10<sup>13</sup> TU of phage is applied to the tube and incubated for 30 minutes at room temperature tumbling on an over and under turntable and then left to stand for another 1.5 hours. Tubes are washed 10 times with PBS 0.1% Tween-20 and 10 times with PBS. Phage are eluted by adding 1 ml of 100 mM triethylamine and rotating 15 minutes on an under and over turntable after which the solution is immediately neutralized with 0.5 ml of 1.0M Tris-HCl, pH 7.4. Phage are then used to infect 10 ml of mid-log E. coli TG1 by incubating eluted phage with bacteria for 30 minutes at 37°C. The E. coli are then plated on TYE plates containing 1% glucose and 100  $\mu$ g/ml ampicillin. The resulting bacterial library is then rescued with delta gene 3 helper phage as described above to prepare phage for a subsequent round of selection. This process is then repeated for a total of 4 rounds of affinity purification with tube-washing increased to 20 times with PBS, 0.1% Tween-20 and 20 times with PBS for rounds 3 and 4.

*Characterization of Binders.* Eluted phage from the 3rd and 4th rounds of selection are used to infect E. coli HB 2151 and soluble scFv is produced (Marks, et al., 1991) from single colonies for assay. ELISAs are performed with microtitre plates coated with either 10 pg/ml of the polypeptide of the present invention in 50 mM bicarbonate pH 9.6. Clones positive in ELISA are further characterized by PCR fingerprinting (see, e.g., PCT publication WO 92/01047) and then by sequencing. These ELISA positive clones may also be further characterized by techniques known in the art, such as, for example, epitope mapping, binding affinity, receptor signal transduction, ability to block or competitively inhibit antibody/antigen binding, and competitive agonistic or antagonistic activity.

*Example 11: Method of Determining Alterations in a Gene Corresponding to a Polynucleotide*

RNA isolated from entire families or individual patients presenting with a phenotype of interest (such as a disease) is be isolated. cDNA is then generated from these RNA

samples using protocols known in the art. (See, Sambrook.) The cDNA is then used as a template for PCR, employing primers surrounding regions of interest in SEQ ID NO:X; and/or the nucleotide sequence of the related cDNA in the cDNA clone contained in a deposited library. Suggested PCR conditions consist of 35 cycles at 95 degrees C for 30  
5 seconds; 60-120 seconds at 52-58 degrees C; and 60-120 seconds at 70 degrees C, using buffer solutions described in Sidransky et al., Science 252:706 (1991).

PCR products are then sequenced using primers labeled at their 5' end with T4 polynucleotide kinase, employing SequiTherm Polymerase. (Epicentre Technologies). The intron-exon borders of selected exons is also determined and genomic PCR products  
10 analyzed to confirm the results. PCR products harboring suspected mutations is then cloned and sequenced to validate the results of the direct sequencing.

PCR products is cloned into T-tailed vectors as described in Holton et al., Nucleic Acids Research, 19:1156 (1991) and sequenced with T7 polymerase (United States Biochemical). Affected individuals are identified by mutations not present in unaffected  
15 individuals.

Genomic rearrangements are also observed as a method of determining alterations in a gene corresponding to a polynucleotide. Genomic clones isolated according to Example 2 are nick-translated with digoxigenin deoxy-uridine 5'-triphosphate (Boehringer Mannheim), and FISH performed as described in Johnson et al., Methods Cell Biol. 35:73-99 (1991).  
20 Hybridization with the labeled probe is carried out using a vast excess of human cot-1 DNA for specific hybridization to the corresponding genomic locus.

Chromosomes are counterstained with 4,6-diamino-2-phenylidole and propidium iodide, producing a combination of C- and R-bands. Aligned images for precise mapping are obtained using a triple-band filter set (Chroma Technology, Brattleboro, VT) in combination  
25 with a cooled charge-coupled device camera (Photometrics, Tucson, AZ) and variable excitation wavelength filters. (Johnson et al., Genet. Anal. Tech. Appl., 8:75 (1991).) Image collection, analysis and chromosomal fractional length measurements are performed using the ISee Graphical Program System. (Inovision Corporation, Durham, NC.) Chromosome alterations of the genomic region hybridized by the probe are identified as insertions,  
30 deletions, and translocations. These alterations are used as a diagnostic marker for an associated disease.

*Example 12: Method of Detecting Abnormal Levels of a Polypeptide in a Biological Sample*

A polypeptide of the present invention can be detected in a biological sample, and if an increased or decreased level of the polypeptide is detected, this polypeptide is a marker for a particular phenotype. Methods of detection are numerous, and thus, it is understood that one skilled in the art can modify the following assay to fit their particular needs.

For example, antibody-sandwich ELISAs are used to detect polypeptides in a sample, preferably a biological sample. Wells of a microtiter plate are coated with specific antibodies, at a final concentration of 0.2 to 10 ug/ml. The antibodies are either monoclonal or polyclonal and are produced by the method described in Example 10. The wells are blocked so that non-specific binding of the polypeptide to the well is reduced.

The coated wells are then incubated for > 2 hours at RT with a sample containing the polypeptide. Preferably, serial dilutions of the sample should be used to validate results. The plates are then washed three times with deionized or distilled water to remove unbound polypeptide.

Next, 50 ul of specific antibody-alkaline phosphatase conjugate, at a concentration of 25-400 ng, is added and incubated for 2 hours at room temperature. The plates are again washed three times with deionized or distilled water to remove unbound conjugate.

Add 75 ul of 4-methylumbelliferyl phosphate (MUP) or p-nitrophenyl phosphate (NPP) substrate solution to each well and incubate 1 hour at room temperature. Measure the reaction by a microtiter plate reader. Prepare a standard curve, using serial dilutions of a control sample, and plot polypeptide concentration on the X-axis (log scale) and fluorescence or absorbance of the Y-axis (linear scale). Interpolate the concentration of the polypeptide in the sample using the standard curve.

*Example 13: Formulation*

The invention also provides methods of treatment and/or prevention of diseases or disorders (such as, for example, any one or more of the diseases or disorders disclosed herein) by administration to a subject of an effective amount of a Therapeutic. By therapeutic is meant a polynucleotides or polypeptides of the invention (including fragments and variants), agonists or antagonists thereof, and/or antibodies thereto, in combination with

a pharmaceutically acceptable carrier type (e.g., a sterile carrier).

The Therapeutic will be formulated and dosed in a fashion consistent with good medical practice, taking into account the clinical condition of the individual patient (especially the side effects of treatment with the Therapeutic alone), the site of delivery, the method of administration, the scheduling of administration, and other factors known to practitioners. The "effective amount" for purposes herein is thus determined by such considerations.

As a general proposition, the total pharmaceutically effective amount of the Therapeutic administered parenterally per dose will be in the range of about 1 ug/kg/day to 10 mg/kg/day of patient body weight, although, as noted above, this will be subject to therapeutic discretion. More preferably, this dose is at least 0.01 mg/kg/day, and most preferably for humans between about 0.01 and 1 mg/kg/day for the hormone. If given continuously, the Therapeutic is typically administered at a dose rate of about 1 ug/kg/hour to about 50 ug/kg/hour, either by 1-4 injections per day or by continuous subcutaneous infusions, for example, using a mini-pump. An intravenous bag solution may also be employed. The length of treatment needed to observe changes and the interval following treatment for responses to occur appears to vary depending on the desired effect.

Therapeutics can be administered orally, rectally, parenterally, intracisternally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), buccally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any. The term "parenteral" as used herein refers to modes of administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.

Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics are administered orally, rectally, parenterally, intracisternally, intravaginally, intraperitoneally, topically (as by powders, ointments, gels, drops or transdermal patch), buccally, or as an oral or nasal spray. "Pharmaceutically acceptable carrier" refers to a non-toxic solid, semisolid or liquid filler, diluent, encapsulating material or formulation auxiliary of any type. The term "parenteral" as used herein refers to modes of administration which include intravenous, intramuscular, intraperitoneal, intrasternal, subcutaneous and intraarticular injection and infusion.



Therapeutics of the invention are also suitably administered by sustained-release systems. Suitable examples of sustained-release Therapeutics include suitable polymeric materials (such as, for example, semi-permeable polymer matrices in the form of shaped articles, e.g., films, or microcapsules), suitable hydrophobic materials (for example as an emulsion in an acceptable oil) or ion exchange resins, and sparingly soluble derivatives (such as, for example, a sparingly soluble salt).

Sustained-release matrices include polylactides (U.S. Pat. No. 3,773,919, EP 58,481), copolymers of L-glutamic acid and gamma-ethyl-L-glutamate (Sidman et al., *Biopolymers* 22:547-556 (1983)), poly (2- hydroxyethyl methacrylate) (Langer et al., *J. Biomed. Mater. Res.* 15:167-277 (1981), and Langer, *Chem. Tech.* 12:98-105 (1982)), ethylene vinyl acetate (Langer et al., *Id.*) or poly-D- (-)-3-hydroxybutyric acid (EP 133,988).

Sustained-release Therapeutics also include liposomally entrapped Therapeutics of the invention (*see generally*, Langer, *Science* 249:1527-1533 (1990); Treat et al., in *Liposomes in the Therapy of Infectious Disease and Cancer*, Lopez-Berestein and Fidler (eds.), Liss, New York, pp. 317 -327 and 353-365 (1989)). Liposomes containing the Therapeutic are prepared by methods known per se: DE 3,218,121; Epstein et al., *Proc. Natl. Acad. Sci. (USA)* 82:3688-3692 (1985); Hwang et al., *Proc. Natl. Acad. Sci.(USA)* 77:4030-4034 (1980); EP 52,322; EP 36,676; EP 88,046; EP 143,949; EP 142,641; Japanese Pat. Appl. 83-118008; U.S. Pat. Nos. 4,485,045 and 4,544,545; and EP 102,324. Ordinarily, the liposomes are of the small (about 200-800 Angstroms) unilamellar type in which the lipid content is greater than about 30 mol. percent cholesterol, the selected proportion being adjusted for the optimal Therapeutic.

In yet an additional embodiment, the Therapeutics of the invention are delivered by way of a pump (*see* Langer, *supra*; Sefton, *CRC Crit. Ref. Biomed. Eng.* 14:201 (1987); Buchwald et al., *Surgery* 88:507 (1980); Saudek et al., *N. Engl. J. Med.* 321:574 (1989)).

Other controlled release systems are discussed in the review by Langer (*Science* 249:1527-1533 (1990)).

For parenteral administration, in one embodiment, the Therapeutic is formulated generally by mixing it at the desired degree of purity, in a unit dosage injectable form (solution, suspension, or emulsion). with a pharmaceutically acceptable carrier, i.e., one that is non-toxic to recipients at the dosages and concentrations employed and is compatible with other ingredients of the formulation. For example, the formulation preferably does not

include oxidizing agents and other compounds that are known to be deleterious to the Therapeutic.

Generally, the formulations are prepared by contacting the Therapeutic uniformly and intimately with liquid carriers or finely divided solid carriers or both. Then, if necessary, the product is shaped into the desired formulation. Preferably the carrier is a parenteral carrier, more preferably a solution that is isotonic with the blood of the recipient. Examples of such carrier vehicles include water, saline, Ringer's solution, and dextrose solution. Non-aqueous vehicles such as fixed oils and ethyl oleate are also useful herein, as well as liposomes.

The carrier suitably contains minor amounts of additives such as substances that enhance isotonicity and chemical stability. Such materials are non-toxic to recipients at the dosages and concentrations employed, and include buffers such as phosphate, citrate, succinate, acetic acid, and other organic acids or their salts; antioxidants such as ascorbic acid; low molecular weight (less than about ten residues) polypeptides, e.g., polyarginine or tripeptides; proteins, such as serum albumin, gelatin, or immunoglobulins; hydrophilic polymers such as polyvinylpyrrolidone; amino acids, such as glycine, glutamic acid, aspartic acid, or arginine; monosaccharides, disaccharides, and other carbohydrates including cellulose or its derivatives, glucose, manose, or dextrans; chelating agents such as EDTA; sugar alcohols such as mannitol or sorbitol; counterions such as sodium; and/or nonionic surfactants such as polysorbates, poloxamers, or PEG.

The Therapeutic is typically formulated in such vehicles at a concentration of about 0.1 mg/ml to 100 mg/ml, preferably 1-10 mg/ml, at a pH of about 3 to 8. It will be understood that the use of certain of the foregoing excipients, carriers, or stabilizers will result in the formation of polypeptide salts.

Any pharmaceutical used for therapeutic administration can be sterile. Sterility is readily accomplished by filtration through sterile filtration membranes (e.g., 0.2 micron membranes). Therapeutics generally are placed into a container having a sterile access port, for example, an intravenous solution bag or vial having a stopper pierceable by a hypodermic injection needle.

Therapeutics ordinarily will be stored in unit or multi-dose containers, for example, sealed ampoules or vials, as an aqueous solution or as a lyophilized formulation for reconstitution. As an example of a lyophilized formulation, 10-ml vials are filled with 5 ml of sterile-filtered 1% (w/v) aqueous Therapeutic solution, and the resulting mixture is

lyophilized. The infusion solution is prepared by reconstituting the lyophilized Therapeutic using bacteriostatic Water-for-Injection.

The invention also provides a pharmaceutical pack or kit comprising one or more containers filled with one or more of the ingredients of the Therapeutics of the invention.

5 Associated with such container(s) can be a notice in the form prescribed by a governmental agency regulating the manufacture, use or sale of pharmaceuticals or biological products, which notice reflects approval by the agency of manufacture, use or sale for human administration. In addition, the Therapeutics may be employed in conjunction with other therapeutic compounds.

10 The Therapeutics of the invention may be administered alone or in combination with adjuvants. Adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, alum, alum plus deoxycholate (ImmunoAg), MTP-PE (Biocine Corp.), QS21 (Genentech, Inc.), BCG, and MPL. In a specific embodiment, Therapeutics of the invention are administered in combination with alum. In another specific  
15 embodiment, Therapeutics of the invention are administered in combination with QS-21. Further adjuvants that may be administered with the Therapeutics of the invention include, but are not limited to, Monophosphoryl lipid immunomodulator, AdjuVax 100a, QS-21, QS-18, CRL1005, Aluminum salts, MF-59, and Virosomal adjuvant technology. Vaccines that may be administered with the Therapeutics of the invention include, but are not limited to,  
20 vaccines directed toward protection against MMR (measles, mumps, rubella), polio, varicella, tetanus/diphtheria, hepatitis A, hepatitis B, haemophilus influenzae B, whooping cough, pneumonia, influenza, Lyme's Disease, rotavirus, cholera, yellow fever, Japanese encephalitis, poliomyelitis, rabies, typhoid fever, and pertussis. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or  
25 concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

30 The Therapeutics of the invention may be administered alone or in combination with other therapeutic agents. Therapeutic agents that may be administered in combination with the Therapeutics of the invention, include but not limited to, other members of the TNF

family, chemotherapeutic agents, antibiotics, steroidal and non-steroidal anti-inflammatories, conventional immunotherapeutic agents, cytokines and/or growth factors. Combinations may be administered either concomitantly, e.g., as an admixture, separately but simultaneously or concurrently; or sequentially. This includes presentations in which the combined agents are administered together as a therapeutic mixture, and also procedures in which the combined agents are administered separately but simultaneously, e.g., as through separate intravenous lines into the same individual. Administration "in combination" further includes the separate administration of one of the compounds or agents given first, followed by the second.

In one embodiment, the Therapeutics of the invention are administered in combination with members of the TNF family. TNF, TNF-related or TNF-like molecules that may be administered with the Therapeutics of the invention include, but are not limited to, soluble forms of TNF-alpha, lymphotoxin-alpha (LT-alpha, also known as TNF-beta), LT-beta (found in complex heterotrimer LT-alpha2-beta), OPGL, FasL, CD27L, CD30L, CD40L, 4-1BBL, DcR3, OX40L, TNF-gamma (International Publication No. WO 96/14328), AIM-I (International Publication No. WO 97/33899), endokine-alpha (International Publication No. WO 98/07880), TR6 (International Publication No. WO 98/30694), OPG, and neutrokin-alpha (International Publication No. WO 98/18921, OX40, and nerve growth factor (NGF), and soluble forms of Fas, CD30, CD27, CD40 and 4-1BB, TR2 (International Publication No. WO 96/34095), DR3 (International Publication No. WO 97/33904), DR4 (International Publication No. WO 98/32856), TR5 (International Publication No. WO 98/30693), TR6 (International Publication No. WO 98/30694), TR7 (International Publication No. WO 98/41629), TRANK, TR9 (International Publication No. WO 98/56892), TR10 (International Publication No. WO 98/54202), 312C2 (International Publication No. WO 98/06842), and TR12, and soluble forms CD154, CD70, and CD153.

In certain embodiments, Therapeutics of the invention are administered in combination with antiretroviral agents, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and/or protease inhibitors. Nucleoside reverse transcriptase inhibitors that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, RETROVIR™ (zidovudine/AZT), VIDEX™ (didanosine/ddI), HIVID™ (zalcitabine/ddC), ZERIT™ (stavudine/d4T), EPIVIR™ (lamivudine/3TC), and COMBIVIR™ (zidovudine/lamivudine). Non-nucleoside reverse transcriptase inhibitors that may be administered in combination with the Therapeutics of the

invention, include, but are not limited to, VIRAMUNE™ (nevirapine), RESCRIPTOR™ (delavirdine), and SUSTIVA™ (efavirenz). Protease inhibitors that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, CRIXIVAN™ (indinavir), NORVIR™ (ritonavir), INVIRASE™ (saquinavir), and  
5 VIRACEPT™ (nelfinavir). In a specific embodiment, antiretroviral agents, nucleoside reverse transcriptase inhibitors, non-nucleoside reverse transcriptase inhibitors, and/or protease inhibitors may be used in any combination with Therapeutics of the invention to treat AIDS and/or to prevent or treat HIV infection.

In other embodiments, Therapeutics of the invention may be administered in  
10 combination with anti-opportunistic infection agents. Anti-opportunistic agents that may be administered in combination with the Therapeutics of the invention, include, but are not limited to, TRIMETHOPRIM-SULFAMETHOXAZOLE™, DAPSONE™, PENTAMIDINE™, ATOVAQUONE™, ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, ETHAMBUTOL™, RIFABUTIN™, CLARITHROMYCIN™, AZITHROMYCIN™,  
15 GANCICLOVIR™, FOSCARNET™, CIDOFOVIR™, FLUCONAZOLE™, ITRACONAZOLE™, KETOCONAZOLE™, ACYCLOVIR™, FAMCICLOVIR™, PYRIMETHAMINE™, LEUCOVORIN™, NEUPOGEN™ (filgrastim/G-CSF), and LEUKINE™ (sargramostim/GM-CSF). In a specific embodiment, Therapeutics of the invention are used in any combination with TRIMETHOPRIM-SULFAMETHOXAZOLE™,  
20 DAPSONE™, PENTAMIDINE™, and/or ATOVAQUONE™ to prophylactically treat or prevent an opportunistic *Pneumocystis carinii* pneumonia infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ISONIAZID™, RIFAMPIN™, PYRAZINAMIDE™, and/or ETHAMBUTOL™ to prophylactically treat or prevent an opportunistic *Mycobacterium avium* complex infection. In another specific  
25 embodiment, Therapeutics of the invention are used in any combination with RIFABUTIN™, CLARITHROMYCIN™, and/or AZITHROMYCIN™ to prophylactically treat or prevent an opportunistic *Mycobacterium tuberculosis* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with GANCICLOVIR™, FOSCARNET™, and/or CIDOFOVIR™ to prophylactically treat or prevent an opportunistic  
30 cytomegalovirus infection. In another specific embodiment, Therapeutics of the invention are used in any combination with FLUCONAZOLE™, ITRACONAZOLE™, and/or

KETOCONAZOLE™ to prophylactically treat or prevent an opportunistic fungal infection. In another specific embodiment, Therapeutics of the invention are used in any combination with ACYCLOVIR™ and/or FAMCICOLVIR™ to prophylactically treat or prevent an opportunistic herpes simplex virus type I and/or type II infection. In another specific  
5 embodiment, Therapeutics of the invention are used in any combination with PYRIMETHAMINE™ and/or LEUCOVORIN™ to prophylactically treat or prevent an opportunistic *Toxoplasma gondii* infection. In another specific embodiment, Therapeutics of the invention are used in any combination with LEUCOVORIN™ and/or NEUPOGEN™ to prophylactically treat or prevent an opportunistic bacterial infection.

10 In a further embodiment, the Therapeutics of the invention are administered in combination with an antiviral agent. Antiviral agents that may be administered with the Therapeutics of the invention include, but are not limited to, acyclovir, ribavirin, amantadine, and remantidine.

In a further embodiment, the Therapeutics of the invention are administered in  
15 combination with an antibiotic agent. Antibiotic agents that may be administered with the Therapeutics of the invention include, but are not limited to, amoxicillin, beta-lactamases, aminoglycosides, beta-lactam (glycopeptide), beta-lactamases, Clindamycin, chloramphenicol, cephalosporins, ciprofloxacin, ciprofloxacin, erythromycin, fluoroquinolones, macrolides, metronidazole, penicillins, quinolones, rifampin, streptomycin,  
20 sulfonamide, tetracyclines, trimethoprim, trimethoprim-sulfamthoxazole, and vancomycin.

Conventional nonspecific immunosuppressive agents that may be administered in combination with the Therapeutics of the invention include, but are not limited to, steroids, cyclosporine, cyclosporine analogs, cyclophosphamide methylprednisone, prednisone, azathioprine, FK-506, 15-deoxyspergualin, and other immunosuppressive agents that act by  
25 suppressing the function of responding T cells.

In specific embodiments, Therapeutics of the invention are administered in combination with immunosuppressants. Immunosuppressants preparations that may be administered with the Therapeutics of the invention include, but are not limited to, ORTHOCLONE™ (OKT3), SANDIMMUNE™/NEORAL™/SANGDYA™ (cyclosporin),  
30 PROGRAF™ (tacrolimus), CELLCEPT™ (mycophenolate), Azathioprine, glucocorticosteroids, and RAPAMUNE™ (sirolimus). In a specific embodiment, immunosuppressants may be used to prevent rejection of organ or bone marrow transplantation.

In an additional embodiment, Therapeutics of the invention are administered alone or in combination with one or more intravenous immune globulin preparations. Intravenous immune globulin preparations that may be administered with the Therapeutics of the invention include, but not limited to, GAMMAR™, IVEEGAM™, SANDOGLOBULIN™, 5 GAMMAGARD S/D™, and GAMIMUNE™. In a specific embodiment, Therapeutics of the invention are administered in combination with intravenous immune globulin preparations in transplantation therapy (e.g., bone marrow transplant).

In an additional embodiment, the Therapeutics of the invention are administered alone or in combination with an anti-inflammatory agent. Anti-inflammatory agents that may be 10 administered with the Therapeutics of the invention include, but are not limited to, glucocorticoids and the nonsteroidal anti-inflammatories, aminoarylcarboxylic acid derivatives, arylacetic acid derivatives, arylbutyric acid derivatives, arylcarboxylic acids, arylpropionic acid derivatives, pyrazoles, pyrazolones, salicylic acid derivatives, thiazinecarboxamides, e-acetamidocaproic acid, S-adenosylmethionine, 3-amino-4- 15 hydroxybutyric acid, amixetrine, bendazac, benzydamine, bucolome, difenpiramide, ditazol, emorfazone, guaiazulene, nabumetone, nimesulide, orgotein, oxaceprol, paranyline, perisoxal, pifoxime, proquazone, proxazole, and tenidap.

In another embodiment, compositions of the invention are administered in combination with a chemotherapeutic agent. Chemotherapeutic agents that may be 20 administered with the Therapeutics of the invention include, but are not limited to, antibiotic derivatives (e.g., doxorubicin, bleomycin, daunorubicin, and dactinomycin); antiestrogens (e.g., tamoxifen); antimetabolites (e.g., fluorouracil, 5-FU, methotrexate, floxuridine, interferon alpha-2b, glutamic acid, plicamycin, mercaptopurine, and 6-thioguanine); cytotoxic agents (e.g., carmustine, BCNU, lomustine, CCNU, cytosine arabinoside, 25 cyclophosphamide, estramustine, hydroxyurea, procarbazine, mitomycin, busulfan, cis-platin, and vincristine sulfate); hormones (e.g., medroxyprogesterone, estramustine phosphate sodium, ethinyl estradiol, estradiol, megestrol acetate, methyltestosterone, diethylstilbestrol diphosphate, chlorotrianisene, and testolactone); nitrogen mustard derivatives (e.g., mephallen, chorambucil, mechlorethamine (nitrogen mustard) and thiotepa); steroids and 30 combinations (e.g., bethamethasone sodium phosphate); and others (e.g., dicarbazine, asparaginase, mitotane, vincristine sulfate, vinblastine sulfate, and etoposide).

In a specific embodiment, Therapeutics of the invention are administered in

combination with CHOP (cyclophosphamide, doxorubicin, vincristine, and prednisone) or any combination of the components of CHOP. In another embodiment, Therapeutics of the invention are administered in combination with Rituximab. In a further embodiment, Therapeutics of the invention are administered with Rituxmab and CHOP, or Rituxmab and any combination of the components of CHOP.

In an additional embodiment, the Therapeutics of the invention are administered in combination with cytokines. Cytokines that may be administered with the Therapeutics of the invention include, but are not limited to, IL2, IL3, IL4, IL5, IL6, IL7, IL10, IL12, IL13, IL15, anti-CD40, CD40L, IFN-gamma and TNF-alpha. In another embodiment, Therapeutics of the invention may be administered with any interleukin, including, but not limited to, IL-1alpha, IL-1beta, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17, IL-18, IL-19, IL-20, and IL-21.

In an additional embodiment, the Therapeutics of the invention are administered in combination with angiogenic proteins. Angiogenic proteins that may be administered with the Therapeutics of the invention include, but are not limited to, Glioma Derived Growth Factor (GDGF), as disclosed in European Patent Number EP-399816; Platelet Derived Growth Factor-A (PDGF-A), as disclosed in European Patent Number EP-682110; Platelet Derived Growth Factor-B (PDGF-B), as disclosed in European Patent Number EP-282317; Placental Growth Factor (PIGF), as disclosed in International Publication Number WO 92/06194; Placental Growth Factor-2 (PIGF-2), as disclosed in Hauser et al., Growth Factors, 4:259-268 (1993); Vascular Endothelial Growth Factor (VEGF), as disclosed in International Publication Number WO 90/13649; Vascular Endothelial Growth Factor-A (VEGF-A), as disclosed in European Patent Number EP-506477; Vascular Endothelial Growth Factor-2 (VEGF-2), as disclosed in International Publication Number WO 96/39515; Vascular Endothelial Growth Factor B (VEGF-3); Vascular Endothelial Growth Factor B-186 (VEGF-B186), as disclosed in International Publication Number WO 96/26736; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/02543; Vascular Endothelial Growth Factor-D (VEGF-D), as disclosed in International Publication Number WO 98/07832; and Vascular Endothelial Growth Factor-E (VEGF-E), as disclosed in German Patent Number DE19639601. The above mentioned references are incorporated herein by reference herein.

In an additional embodiment, the Therapeutics of the invention are administered in



combination with hematopoietic growth factors. Hematopoietic growth factors that may be administered with the Therapeutics of the invention include, but are not limited to, LEUKINE™ (SARGRAMOSTIM™) and NEUPOGEN™ (FILGRASTIM™).

In an additional embodiment, the Therapeutics of the invention are administered in combination with Fibroblast Growth Factors. Fibroblast Growth Factors that may be administered with the Therapeutics of the invention include, but are not limited to, FGF-1, FGF-2, FGF-3, FGF-4, FGF-5, FGF-6, FGF-7, FGF-8, FGF-9, FGF-10, FGF-11, FGF-12, FGF-13, FGF-14, and FGF-15.

In additional embodiments, the Therapeutics of the invention are administered in combination with other therapeutic or prophylactic regimens, such as, for example, radiation therapy.

*Example 14: Method of Treating Decreased Levels of the Polypeptide*

The present invention relates to a method for treating an individual in need of an increased level of a polypeptide of the invention in the body comprising administering to such an individual a composition comprising a therapeutically effective amount of an agonist of the invention (including polypeptides of the invention). Moreover, it will be appreciated that conditions caused by a decrease in the standard or normal expression level of a polypeptide of the present invention in an individual can be treated by administering the agonist or antagonist of the present invention. Thus, the invention also provides a method of treatment of an individual in need of an increased level of the polypeptide comprising administering to such an individual a Therapeutic comprising an amount of the agonist or antagonist to increase the activity level of the polypeptide in such an individual.

For example, a patient with decreased levels of a polypeptide receives a daily dose 0.1-100 ug/kg of the agonist or antagonist for six consecutive days. The exact details of the dosing scheme, based on administration and formulation, are provided in Example 13.

*Example 15: Method of Treating Increased Levels of the Polypeptide*

The present invention also relates to a method of treating an individual in need of a decreased level of a polypeptide of the invention in the body comprising administering to

such an individual a composition comprising a therapeutically effective amount of an antagonist of the invention (including polypeptides and antibodies of the invention).

In one example, antisense technology is used to inhibit production of a polypeptide of the present invention. This technology is one example of a method of decreasing levels of a polypeptide, due to a variety of etiologies, such as cancer.

For example, a patient diagnosed with abnormally increased levels of a polypeptide is administered intravenously antisense polynucleotides at 0.5, 1.0, 1.5, 2.0 and 3.0 mg/kg day for 21 days. This treatment is repeated after a 7-day rest period if the treatment was well tolerated. The formulation of the antisense polynucleotide is provided in Example 13.

*Example 16: Method of Treatment Using Gene Therapy-Ex Vivo*

One method of gene therapy transplants fibroblasts, which are capable of expressing a polypeptide, onto a patient. Generally, fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in tissue-culture medium and separated into small pieces. Small chunks of the tissue are placed on a wet surface of a tissue culture flask, approximately ten pieces are placed in each flask. The flask is turned upside down, closed tight and left at room temperature over night. After 24 hours at room temperature, the flask is inverted and the chunks of tissue remain fixed to the bottom of the flask and fresh media (e.g., Ham's F12 media, with 10% FBS, penicillin and streptomycin) is added. The flasks are then incubated at 37 degree C for approximately one week.

At this time, fresh media is added and subsequently changed every several days. After an additional two weeks in culture, a monolayer of fibroblasts emerge. The monolayer is trypsinized and scaled into larger flasks.

pMV-7 (Kirschmeier, P.T. et al., DNA, 7:219-25 (1988)), flanked by the long terminal repeats of the Moloney murine sarcoma virus, is digested with EcoRI and HindIII and subsequently treated with calf intestinal phosphatase. The linear vector is fractionated on agarose gel and purified, using glass beads.

The cDNA encoding a polypeptide of the present invention can be amplified using PCR primers which correspond to the 5' and 3' end sequences respectively as set forth in Example 1 using primers and having appropriate restriction sites and initiation/stop codons, if necessary. Preferably, the 5' primer contains an EcoRI site and the 3' primer includes a

HindIII site. Equal quantities of the Moloney murine sarcoma virus linear backbone and the amplified EcoRI and HindIII fragment are added together. in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The ligation mixture is then used to transform bacteria HB101, which are then  
5 plated onto agar containing kanamycin for the purpose of confirming that the vector has the gene of interest properly inserted.

The amphotropic pA317 or GP+am12 packaging cells are grown in tissue culture to confluent density in Dulbecco's Modified Eagles Medium (DMEM) with 10% calf serum (CS), penicillin and streptomycin. The MSV vector containing the gene is then added to the  
10 media and the packaging cells transduced with the vector. The packaging cells now produce infectious viral particles containing the gene (the packaging cells are now referred to as producer cells).

Fresh media is added to the transduced producer cells. and subsequently, the media is harvested from a 10 cm plate of confluent producer cells. The spent media, containing the  
15 infectious viral particles, is filtered through a millipore filter to remove detached producer cells and this media is then used to infect fibroblast cells. Media is removed from a sub-confluent plate of fibroblasts and quickly replaced with the media from the producer cells. This media is removed and replaced with fresh media. If the titer of virus is high, then virtually all fibroblasts will be infected and no selection is required. If the titer is very low,  
20 then it is necessary to use a retroviral vector that has a selectable marker, such as neo or his. Once the fibroblasts have been efficiently infected, the fibroblasts are analyzed to determine whether protein is produced.

The engineered fibroblasts are then transplanted onto the host, either alone or after having been grown to confluence on cytodex 3 microcarrier beads.  
25

*Example 17: Gene Therapy Using Endogenous Genes Corresponding To Polynucleotides of the Invention*

Another method of gene therapy according to the present invention involves operably  
30 associating the endogenous polynucleotide sequence of the invention with a promoter via homologous recombination as described, for example, in U.S. Patent NO: 5,641,670, issued June 24, 1997; International Publication NO: WO 96/29411, published September 26, 1996;

International Publication NO: WO 94/12650, published August 4, 1994; Koller et al., *Proc. Natl. Acad. Sci. USA*, 86:8932-8935 (1989); and Zijlstra et al., *Nature*, 342:435-438 (1989). This method involves the activation of a gene which is present in the target cells, but which is not expressed in the cells, or is expressed at a lower level than desired.

5 Polynucleotide constructs are made which contain a promoter and targeting sequences, which are homologous to the 5' non-coding sequence of endogenous polynucleotide sequence, flanking the promoter. The targeting sequence will be sufficiently near the 5' end of the polynucleotide sequence so the promoter will be operably linked to the endogenous sequence upon homologous recombination. The promoter and the targeting  
10 sequences can be amplified using PCR. Preferably, the amplified promoter contains distinct restriction enzyme sites on the 5' and 3' ends. Preferably, the 3' end of the first targeting sequence contains the same restriction enzyme site as the 5' end of the amplified promoter and the 5' end of the second targeting sequence contains the same restriction site as the 3' end of the amplified promoter.

15 The amplified promoter and the amplified targeting sequences are digested with the appropriate restriction enzymes and subsequently treated with calf intestinal phosphatase. The digested promoter and digested targeting sequences are added together in the presence of T4 DNA ligase. The resulting mixture is maintained under conditions appropriate for ligation of the two fragments. The construct is size fractionated on an agarose gel then  
20 purified by phenol extraction and ethanol precipitation.

In this Example, the polynucleotide constructs are administered as naked polynucleotides via electroporation. However, the polynucleotide constructs may also be administered with transfection-facilitating agents, such as liposomes, viral sequences, viral particles, precipitating agents, etc. Such methods of delivery are known in the art.

25 Once the cells are transfected, homologous recombination will take place which results in the promoter being operably linked to the endogenous polynucleotide sequence. This results in the expression of polynucleotide corresponding to the polynucleotide in the cell. Expression may be detected by immunological staining, or any other method known in the art.

30 Fibroblasts are obtained from a subject by skin biopsy. The resulting tissue is placed in DMEM + 10% fetal calf serum. Exponentially growing or early stationary phase fibroblasts are trypsinized and rinsed from the plastic surface with nutrient medium. An

aliquot of the cell suspension is removed for counting, and the remaining cells are subjected to centrifugation. The supernatant is aspirated and the pellet is resuspended in 5 ml of electroporation buffer (20 mM HEPES pH 7.3, 137 mM NaCl, 5 mM KCl, 0.7 mM Na<sub>2</sub>HPO<sub>4</sub>, 6 mM dextrose). The cells are recentrifuged, the supernatant aspirated, and the cells  
5 resuspended in electroporation buffer containing 1 mg/ml acetylated bovine serum albumin. The final cell suspension contains approximately  $3 \times 10^6$  cells/ml. Electroporation should be performed immediately following resuspension.

Plasmid DNA is prepared according to standard techniques. For example, to construct a plasmid for targeting to the locus corresponding to the polynucleotide of the  
10 invention, plasmid pUC18 (MBI Fermentas, Amherst, NY) is digested with HindIII. The CMV promoter is amplified by PCR with an XbaI site on the 5' end and a BamHI site on the 3' end. Two non-coding sequences are amplified via PCR: one non-coding sequence (fragment 1) is amplified with a HindIII site at the 5' end and an Xba site at the 3' end; the other non-coding sequence (fragment 2) is amplified with a BamHI site at the 5' end and a  
15 HindIII site at the 3' end. The CMV promoter and the fragments (1 and 2) are digested with the appropriate enzymes (CMV promoter - XbaI and BamHI; fragment 1 - XbaI; fragment 2 - BamHI) and ligated together. The resulting ligation product is digested with HindIII, and ligated with the HindIII-digested pUC18 plasmid.

Plasmid DNA is added to a sterile cuvette with a 0.4 cm electrode gap (Bio-Rad). The  
20 final DNA concentration is generally at least 120 µg/ml. 0.5 ml of the cell suspension (containing approximately  $1.5 \times 10^6$  cells) is then added to the cuvette, and the cell suspension and DNA solutions are gently mixed. Electroporation is performed with a Gene-Pulser apparatus (Bio-Rad). Capacitance and voltage are set at 960 µF and 250-300 V, respectively. As voltage increases, cell survival decreases, but the percentage of surviving  
25 cells that stably incorporate the introduced DNA into their genome increases dramatically. Given these parameters, a pulse time of approximately 14-20 mSec should be observed.

Electroporated cells are maintained at room temperature for approximately 5 min, and the contents of the cuvette are then gently removed with a sterile transfer pipette. The cells are added directly to 10 ml of prewarmed nutrient media (DMEM with 15% calf serum) in a  
30 10 cm dish and incubated at 37 degree C. The following day, the media is aspirated and replaced with 10 ml of fresh media and incubated for a further 16-24 hours.

The engineered fibroblasts are then injected into the host, either alone or after having

been grown to confluence on cytodex 3 microcarrier beads. The fibroblasts now produce the protein product. The fibroblasts can then be introduced into a patient as described above.

*Example 18: Method of Treatment Using Gene Therapy - In Vivo*

5

Another aspect of the present invention is using *in vivo* gene therapy methods to treat disorders, diseases and conditions. The gene therapy method relates to the introduction of naked nucleic acid (DNA, RNA, and antisense DNA or RNA) sequences into an animal to increase or decrease the expression of the polypeptide. The polynucleotide of the present invention may be operatively linked to a promoter or any other genetic elements necessary for the expression of the polypeptide by the target tissue. Such gene therapy and delivery techniques and methods are known in the art, see, for example, WO90/11092, WO98/11779; U.S. Patent NO. 5693622, 5705151, 5580859; Tabata et al., *Cardiovasc. Res.* 35(3):470-479 (1997); Chao et al., *Pharmacol. Res.* 35(6):517-522 (1997); Wolff, *Neuromuscul. Disord.* 7(5):314-318 (1997); Schwartz et al., *Gene Ther.* 3(5):405-411 (1996); Tsurumi et al., *Circulation* 94(12):3281-3290 (1996) (incorporated herein by reference).

The polynucleotide constructs may be delivered by any method that delivers injectable materials to the cells of an animal, such as, injection into the interstitial space of tissues (heart, muscle, skin, lung, liver, intestine and the like). The polynucleotide constructs can be delivered in a pharmaceutically acceptable liquid or aqueous carrier.

The term "naked" polynucleotide, DNA or RNA, refers to sequences that are free from any delivery vehicle that acts to assist, promote, or facilitate entry into the cell, including viral sequences, viral particles, liposome formulations, lipofectin or precipitating agents and the like. However, the polynucleotides of the present invention may also be delivered in liposome formulations (such as those taught in Felgner P.L. et al. (1995) *Ann. NY Acad. Sci.* 772:126-139 and Abdallah B. et al. (1995) *Biol. Cell* 85(1):1-7) which can be prepared by methods well known to those skilled in the art.

The polynucleotide vector constructs used in the gene therapy method are preferably constructs that will not integrate into the host genome nor will they contain sequences that allow for replication. Any strong promoter known to those skilled in the art can be used for driving the expression of DNA. Unlike other gene therapies techniques, one major advantage of introducing naked nucleic acid sequences into target cells is the transitory nature of the

polynucleotide synthesis in the cells. Studies have shown that non-replicating DNA sequences can be introduced into cells to provide production of the desired polypeptide for periods of up to six months.

The polynucleotide construct can be delivered to the interstitial space of tissues within the an animal. including of muscle, skin, brain, lung, liver, spleen, bone marrow, thymus, heart, lymph, blood, bone, cartilage, pancreas, kidney, gall bladder, stomach, intestine, testis, ovary, uterus, rectum, nervous system, eye, gland, and connective tissue. Interstitial space of the tissues comprises the intercellular fluid, mucopolysaccharide matrix among the reticular fibers of organ tissues, elastic fibers in the walls of vessels or chambers, collagen fibers of fibrous tissues, or that same matrix within connective tissue ensheathing muscle cells or in the lacunae of bone. It is similarly the space occupied by the plasma of the circulation and the lymph fluid of the lymphatic channels. Delivery to the interstitial space of muscle tissue is preferred for the reasons discussed below. They may be conveniently delivered by injection into the tissues comprising these cells. They are preferably delivered to and expressed in persistent, non-dividing cells which are differentiated, although delivery and expression may be achieved in non-differentiated or less completely differentiated cells, such as, for example, stem cells of blood or skin fibroblasts. *In vivo* muscle cells are particularly competent in their ability to take up and express polynucleotides.

For the naked polynucleotide injection, an effective dosage amount of DNA or RNA will be in the range of from about 0.05 g/kg body weight to about 50 mg/kg body weight. Preferably the dosage will be from about 0.005 mg/kg to about 20 mg/kg and more preferably from about 0.05 mg/kg to about 5 mg/kg. Of course, as the artisan of ordinary skill will appreciate, this dosage will vary according to the tissue site of injection. The appropriate and effective dosage of nucleic acid sequence can readily be determined by those of ordinary skill in the art and may depend on the condition being treated and the route of administration. The preferred route of administration is by the parenteral route of injection into the interstitial space of tissues. However, other parenteral routes may also be used, such as, inhalation of an aerosol formulation particularly for delivery to lungs or bronchial tissues, throat or mucous membranes of the nose. In addition, naked polynucleotide constructs can be delivered to arteries during angioplasty by the catheter used in the procedure.

The dose response effects of injected polynucleotide in muscle *in vivo* is determined as follows. Suitable template DNA for production of mRNA coding for polypeptide of the

present invention is prepared in accordance with a standard recombinant DNA methodology. The template DNA, which may be either circular or linear, is either used as naked DNA or complexed with liposomes. The quadriceps muscles of mice are then injected with various amounts of the template DNA.

5 Five to six week old female and male Balb/C mice are anesthetized by intraperitoneal injection with 0.3 ml of 2.5% Avertin. A 1.5 cm incision is made on the anterior thigh, and the quadriceps muscle is directly visualized. The template DNA is injected in 0.1 ml of carrier in a 1 cc syringe through a 27 gauge needle over one minute, approximately 0.5 cm from the distal insertion site of the muscle into the knee and about 0.2 cm deep. A suture is  
10 placed over the injection site for future localization, and the skin is closed with stainless steel clips.

After an appropriate incubation time (e.g., 7 days) muscle extracts are prepared by excising the entire quadriceps. Every fifth 15 um cross-section of the individual quadriceps muscles is histochemically stained for protein expression. A time course for protein  
15 expression may be done in a similar fashion except that quadriceps from different mice are harvested at different times. Persistence of DNA in muscle following injection may be determined by Southern blot analysis after preparing total cellular DNA and HIRT supernatants from injected and control mice. The results of the above experimentation in mice can be use to extrapolate proper dosages and other treatment parameters in humans and  
20 other animals using naked DNA.

#### *Example 19: Transgenic Animals*

The polypeptides of the invention can also be expressed in transgenic animals.  
25 Animals of any species, including, but not limited to, mice, rats, rabbits, hamsters, guinea pigs, pigs, micro-pigs, goats, sheep, cows and non-human primates, e.g., baboons, monkeys, and chimpanzees may be used to generate transgenic animals. In a specific embodiment, techniques described herein or otherwise known in the art. are used to express polypeptides of the invention in humans, as part of a gene therapy protocol.

30 Any technique known in the art may be used to introduce the transgene (i.e., polynucleotides of the invention) into animals to produce the founder lines of transgenic animals. Such techniques include, but are not limited to, pronuclear microinjection (Paterson



et al., Appl. Microbiol. Biotechnol. 40:691-698 (1994); Carver et al., Biotechnology (NY) 11:1263-1270 (1993); Wright et al., Biotechnology (NY) 9:830-834 (1991); and Hoppe et al., U.S. Pat. No. 4,873,191 (1989)); retrovirus mediated gene transfer into germ lines (Van der Putten et al., Proc. Natl. Acad. Sci., USA 82:6148-6152 (1985)), blastocysts or embryos; 5 gene targeting in embryonic stem cells (Thompson et al., Cell 56:313-321 (1989)); electroporation of cells or embryos (Lo, 1983, Mol Cell. Biol. 3:1803-1814 (1983)); introduction of the polynucleotides of the invention using a gene gun (see, e.g., Ulmer et al., Science 259:1745 (1993); introducing nucleic acid constructs into embryonic pluripotent stem cells and transferring the stem cells back into the blastocyst; and sperm-mediated gene 10 transfer (Lavitrano et al., Cell 57:717-723 (1989); etc. For a review of such techniques, see Gordon, "Transgenic Animals." Intl. Rev. Cytol. 115:171-229 (1989), which is incorporated by reference herein in its entirety.

Any technique known in the art may be used to produce transgenic clones containing polynucleotides of the invention, for example, nuclear transfer into enucleated oocytes of 15 nuclei from cultured embryonic, fetal, or adult cells induced to quiescence (Campell et al., Nature 380:64-66 (1996); Wilmut et al., Nature 385:810-813 (1997)).

The present invention provides for transgenic animals that carry the transgene in all their cells, as well as animals which carry the transgene in some, but not all their cells, *i.e.*, mosaic animals or chimeric. The transgene may be integrated as a single transgene or as 20 multiple copies such as in concatamers, *e.g.*, head-to-head tandems or head-to-tail tandems. The transgene may also be selectively introduced into and activated in a particular cell type by following, for example, the teaching of Lasko et al. (Lasko et al., Proc. Natl. Acad. Sci. USA 89:6232-6236 (1992)). The regulatory sequences required for such a cell-type specific activation will depend upon the particular cell type of interest, and will be apparent to those 25 of skill in the art. When it is desired that the polynucleotide transgene be integrated into the chromosomal site of the endogenous gene, gene targeting is preferred. Briefly, when such a technique is to be utilized, vectors containing some nucleotide sequences homologous to the endogenous gene are designed for the purpose of integrating, via homologous recombination with chromosomal sequences, into and disrupting the function of the nucleotide sequence of 30 the endogenous gene. The transgene may also be selectively introduced into a particular cell type, thus inactivating the endogenous gene in only that cell type, by following, for example, the teaching of Gu et al. (Gu et al., Science 265:103-106 (1994)). The regulatory sequences

required for such a cell-type specific inactivation will depend upon the particular cell type of interest, and will be apparent to those of skill in the art.

Once transgenic animals have been generated, the expression of the recombinant gene may be assayed utilizing standard techniques. Initial screening may be accomplished by Southern blot analysis or PCR techniques to analyze animal tissues to verify that integration of the transgene has taken place. The level of mRNA expression of the transgene in the tissues of the transgenic animals may also be assessed using techniques which include, but are not limited to, Northern blot analysis of tissue samples obtained from the animal, *in situ* hybridization analysis, and reverse transcriptase-PCR (rt-PCR). Samples of transgenic gene-expressing tissue may also be evaluated immunocytochemically or immunohistochemically using antibodies specific for the transgene product.

Once the founder animals are produced, they may be bred, inbred, outbred, or crossbred to produce colonies of the particular animal. Examples of such breeding strategies include, but are not limited to: outbreeding of founder animals with more than one integration site in order to establish separate lines; inbreeding of separate lines in order to produce compound transgenics that express the transgene at higher levels because of the effects of additive expression of each transgene; crossing of heterozygous transgenic animals to produce animals homozygous for a given integration site in order to both augment expression and eliminate the need for screening of animals by DNA analysis; crossing of separate homozygous lines to produce compound heterozygous or homozygous lines; and breeding to place the transgene on a distinct background that is appropriate for an experimental model of interest.

Transgenic animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

#### *Example 20: Knock-Out Animals*

Endogenous gene expression can also be reduced by inactivating or "knocking out" the gene and/or its promoter using targeted homologous recombination. (*E.g.*, see Smithies et al., *Nature* 317:230-234 (1985); Thomas & Capecchi, *Cell* 51:503-512 (1987); Thompson

et al., Cell 5:313-321 (1989); each of which is incorporated by reference herein in its entirety). For example, a mutant, non-functional polynucleotide of the invention (or a completely unrelated DNA sequence) flanked by DNA homologous to the endogenous polynucleotide sequence (either the coding regions or regulatory regions of the gene) can be used, with or without a selectable marker and/or a negative selectable marker, to transfect cells that express polypeptides of the invention *in vivo*. In another embodiment, techniques known in the art are used to generate knockouts in cells that contain, but do not express the gene of interest. Insertion of the DNA construct, via targeted homologous recombination, results in inactivation of the targeted gene. Such approaches are particularly suited in research and agricultural fields where modifications to embryonic stem cells can be used to generate animal offspring with an inactive targeted gene (e.g., see Thomas & Capecchi 1987 and Thompson 1989, *supra*). However this approach can be routinely adapted for use in humans provided the recombinant DNA constructs are directly administered or targeted to the required site *in vivo* using appropriate viral vectors that will be apparent to those of skill in the art.

In further embodiments of the invention, cells that are genetically engineered to express the polypeptides of the invention, or alternatively, that are genetically engineered not to express the polypeptides of the invention (e.g., knockouts) are administered to a patient *in vivo*. Such cells may be obtained from the patient (i.e., animal, including human) or an MHC compatible donor and can include, but are not limited to fibroblasts, bone marrow cells, blood cells (e.g., lymphocytes), adipocytes, muscle cells, endothelial cells etc. The cells are genetically engineered *in vitro* using recombinant DNA techniques to introduce the coding sequence of polypeptides of the invention into the cells, or alternatively, to disrupt the coding sequence and/or endogenous regulatory sequence associated with the polypeptides of the invention, e.g., by transduction (using viral vectors, and preferably vectors that integrate the transgene into the cell genome) or transfection procedures, including, but not limited to, the use of plasmids, cosmids, YACs, naked DNA, electroporation, liposomes, etc. The coding sequence of the polypeptides of the invention can be placed under the control of a strong constitutive or inducible promoter or promoter/enhancer to achieve expression, and preferably secretion, of the polypeptides of the invention. The engineered cells which express and preferably secrete the polypeptides of the invention can be introduced into the patient systemically, e.g., in the circulation, or intraperitoneally.

Alternatively, the cells can be incorporated into a matrix and implanted in the body, e.g., genetically engineered fibroblasts can be implanted as part of a skin graft; genetically engineered endothelial cells can be implanted as part of a lymphatic or vascular graft. (See, for example, Anderson et al. U.S. Patent No. 5,399,349; and Mulligan & Wilson, U.S. Patent  
5 No. 5,460,959 each of which is incorporated by reference herein in its entirety).

When the cells to be administered are non-autologous or non-MHC compatible cells, they can be administered using well known techniques which prevent the development of a host immune response against the introduced cells. For example, the cells may be introduced in an encapsulated form which, while allowing for an exchange of components with the  
10 immediate extracellular environment, does not allow the introduced cells to be recognized by the host immune system.

Transgenic and "knock-out" animals of the invention have uses which include, but are not limited to, animal model systems useful in elaborating the biological function of polypeptides of the present invention, studying conditions and/or disorders associated with  
15 aberrant expression, and in screening for compounds effective in ameliorating such conditions and/or disorders.

*Example 22: Assays Detecting Stimulation or Inhibition of B cell Proliferation and Differentiation*

20 Generation of functional humoral immune responses requires both soluble and cognate signaling between B-lineage cells and their microenvironment. Signals may impart a positive stimulus that allows a B-lineage cell to continue its programmed development, or a negative stimulus that instructs the cell to arrest its current developmental pathway. To date,  
25 numerous stimulatory and inhibitory signals have been found to influence B cell responsiveness including IL-2, IL-4, IL-5, IL-6, IL-7, IL10, IL-13, IL-14 and IL-15. Interestingly, these signals are by themselves weak effectors but can, in combination with various co-stimulatory proteins, induce activation, proliferation, differentiation, homing, tolerance and death among B cell populations.

30 One of the best studied classes of B-cell co-stimulatory proteins is the TNF-superfamily. Within this family CD40, CD27, and CD30 along with their respective ligands CD154, CD70, and CD153 have been found to regulate a variety of immune responses.

Assays which allow for the detection and/or observation of the proliferation and differentiation of these B-cell populations and their precursors are valuable tools in determining the effects various proteins may have on these B-cell populations in terms of proliferation and differentiation. Listed below are two assays designed to allow for the detection of the differentiation, proliferation, or inhibition of B-cell populations and their precursors.

**In Vitro Assay-** Agonists or antagonists of the invention can be assessed for its ability to induce activation, proliferation, differentiation or inhibition and/or death in B-cell populations and their precursors. The activity of the agonists or antagonists of the invention on purified human tonsillar B cells, measured qualitatively over the dose range from 0.1 to 10,000 ng/mL, is assessed in a standard B-lymphocyte co-stimulation assay in which purified tonsillar B cells are cultured in the presence of either formalin-fixed *Staphylococcus aureus* Cowan I (SAC) or immobilized anti-human IgM antibody as the priming agent. Second signals such as IL-2 and IL-15 synergize with SAC and IgM crosslinking to elicit B cell proliferation as measured by tritiated-thymidine incorporation. Novel synergizing agents can be readily identified using this assay. The assay involves isolating human tonsillar B cells by magnetic bead (MACS) depletion of CD3-positive cells. The resulting cell population is greater than 95% B cells as assessed by expression of CD45R(B220).

Various dilutions of each sample are placed into individual wells of a 96-well plate to which are added  $10^5$  B-cells suspended in culture medium (RPMI 1640 containing 10% FBS,  $5 \times 10^{-5}$  M 2ME, 100U/ml penicillin, 10ug/ml streptomycin, and  $10^{-5}$  dilution of SAC) in a total volume of 150ul. Proliferation or inhibition is quantitated by a 20h pulse (1uCi/well) with  $^3$ H-thymidine (6.7 Ci/mM) beginning 72h post factor addition. The positive and negative controls are IL2 and medium respectively.

**In Vivo Assay-** BALB/c mice are injected (i.p.) twice per day with buffer only, or 2 mg/Kg of agonists or antagonists of the invention, or truncated forms thereof. Mice receive this treatment for 4 consecutive days, at which time they are sacrificed and various tissues and serum collected for analyses. Comparison of H&E sections from normal spleens and spleens treated with agonists or antagonists of the invention identify the results of the activity of the agonists or antagonists on spleen cells, such as the diffusion of peri-arterial lymphatic sheaths, and/or significant increases in the nucleated cellularity of the red pulp regions, which may indicate the activation of the differentiation and proliferation of B-cell populations.

Immunohistochemical studies using a B cell marker, anti-CD45R(B220), are used to determine whether any physiological changes to splenic cells, such as splenic disorganization, are due to increased B-cell representation within loosely defined B-cell zones that infiltrate established T-cell regions.

5           Flow cytometric analyses of the spleens from mice treated with agonist or antagonist is used to indicate whether the agonists or antagonists specifically increases the proportion of ThB+, CD45R(B220)dull B cells over that which is observed in control mice. Likewise, a predicted consequence of increased mature B-cell representation in vivo is a relative increase in serum Ig titers. Accordingly, serum IgM and IgA levels are compared  
10       between buffer and agonists or antagonists-treated mice.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

#### 15    *Example 23: T Cell Proliferation Assay*

A CD3-induced proliferation assay is performed on PBMCs and is measured by the uptake of <sup>3</sup>H-thymidine. The assay is performed as follows. Ninety-six well plates are coated with 100 µl/well of mAb to CD3 (HIT3a, Pharmingen) or isotype-matched control  
20       mAb (B33.1) overnight at 4 degrees C (1 µg/ml in .05M bicarbonate buffer, pH 9.5), then washed three times with PBS. PBMC are isolated by F/H gradient centrifugation from human peripheral blood and added to quadruplicate wells (5 x 10<sup>4</sup>/well) of mAb coated plates in RPMI containing 10% FCS and P/S in the presence of varying concentrations of agonists or antagonists of the invention (total volume 200 ul). Relevant protein buffer and medium  
25       alone are controls. After 48 hr. culture at 37 degrees C, plates are spun for 2 min. at 1000 rpm and 100 µl of supernatant is removed and stored -20 degrees C for measurement of IL-2 (or other cytokines) if effect on proliferation is observed. Wells are supplemented with 100 ul of medium containing 0.5 uCi of <sup>3</sup>H-thymidine and cultured at 37 degrees C for 18-24 hr. Wells are harvested and incorporation of <sup>3</sup>H-thymidine used as a measure of proliferation.  
30       Anti-CD3 alone is the positive control for proliferation. IL-2 (100 U/ml) is also used as a control which enhances proliferation. Control antibody which does not induce proliferation of T cells is used as the negative controls for the effects of agonists or antagonists of the

invention.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

5

*Example 24: Effect of Agonists or Antagonists of the Invention on the Expression of MHC Class II, Costimulatory and Adhesion Molecules and Cell Differentiation of Monocytes and Monocyte-Derived Human Dendritic Cells*

10 Dendritic cells are generated by the expansion of proliferating precursors found in the peripheral blood: adherent PBMC or elutriated monocytic fractions are cultured for 7-10 days with GM-CSF (50 ng/ml) and IL-4 (20 ng/ml). These dendritic cells have the characteristic phenotype of immature cells (expression of CD1, CD80, CD86, CD40 and MHC class II antigens). Treatment with activating factors, such as TNF- $\alpha$ , causes a rapid change in  
15 surface phenotype (increased expression of MHC class I and II, costimulatory and adhesion molecules, downregulation of FC $\gamma$ RII, upregulation of CD83). These changes correlate with increased antigen-presenting capacity and with functional maturation of the dendritic cells.

FACS analysis of surface antigens is performed as follows. Cells are treated 1-3 days with increasing concentrations of agonist or antagonist of the invention or LPS (positive  
20 control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degrees C. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

25 Effect on the production of cytokines. Cytokines generated by dendritic cells, in particular IL-12, are important in the initiation of T-cell dependent immune responses. IL-12 strongly influences the development of Th1 helper T-cell immune response, and induces cytotoxic T and NK cell function. An ELISA is used to measure the IL-12 release as follows. Dendritic cells ( $10^6$ /ml) are treated with increasing concentrations of agonists or antagonists of the  
30 invention for 24 hours. LPS (100 ng/ml) is added to the cell culture as positive control. Supernatants from the cell cultures are then collected and analyzed for IL-12 content using commercial ELISA kit (e.g., R & D Systems (Minneapolis, MN)). The standard protocols

provided with the kits are used.

Effect on the expression of MHC Class II, costimulatory and adhesion molecules. Three major families of cell surface antigens can be identified on monocytes: adhesion molecules, molecules involved in antigen presentation, and Fc receptor. Modulation of the expression of MHC class II antigens and other costimulatory molecules, such as B7 and ICAM-1, may result in changes in the antigen presenting capacity of monocytes and ability to induce T cell activation. Increase expression of Fc receptors may correlate with improved monocyte cytotoxic activity, cytokine release and phagocytosis.

FACS analysis is used to examine the surface antigens as follows. Monocytes are treated 1-5 days with increasing concentrations of agonists or antagonists of the invention or LPS (positive control), washed with PBS containing 1% BSA and 0.02 mM sodium azide, and then incubated with 1:20 dilution of appropriate FITC- or PE-labeled monoclonal antibodies for 30 minutes at 4 degreesC. After an additional wash, the labeled cells are analyzed by flow cytometry on a FACScan (Becton Dickinson).

Monocyte activation and/or increased survival. Assays for molecules that activate (or alternatively, inactivate) monocytes and/or increase monocyte survival (or alternatively, decrease monocyte survival) are known in the art and may routinely be applied to determine whether a molecule of the invention functions as an inhibitor or activator of monocytes. Agonists or antagonists of the invention can be screened using the three assays described below. For each of these assays, Peripheral blood mononuclear cells (PBMC) are purified from single donor leukopacks (American Red Cross, Baltimore, MD) by centrifugation through a Histopaque gradient (Sigma). Monocytes are isolated from PBMC by counterflow centrifugal elutriation.

Monocyte Survival Assay. Human peripheral blood monocytes progressively lose viability when cultured in absence of serum or other stimuli. Their death results from internally regulated process (apoptosis). Addition to the culture of activating factors, such as TNF-alpha dramatically improves cell survival and prevents DNA fragmentation. Propidium iodide (PI) staining is used to measure apoptosis as follows. Monocytes are cultured for 48 hours in polypropylene tubes in serum-free medium (positive control), in the presence of 100 ng/ml



TNF-alpha (negative control), and in the presence of varying concentrations of the compound to be tested. Cells are suspended at a concentration of  $2 \times 10^6$ /ml in PBS containing PI at a final concentration of 5  $\mu$ g/ml, and then incubated at room temperature for 5 minutes before FACScan analysis. PI uptake has been demonstrated to correlate with DNA fragmentation in this experimental paradigm.

Effect on cytokine release. An important function of monocytes/macrophages is their regulatory activity on other cellular populations of the immune system through the release of cytokines after stimulation. An ELISA to measure cytokine release is performed as follows.

Human monocytes are incubated at a density of  $5 \times 10^5$  cells/ml with increasing concentrations of agonists or antagonists of the invention and under the same conditions, but in the absence of agonists or antagonists. For IL-12 production, the cells are primed overnight with IFN (100 U/ml) in presence of agonist or antagonist of the invention. LPS (10 ng/ml) is then added. Conditioned media are collected after 24h and kept frozen until use. Measurement of TNF-alpha, IL-10, MCP-1 and IL-8 is then performed using a commercially available ELISA kit (e. g, R & D Systems (Minneapolis, MN)) and applying the standard protocols provided with the kit.

Oxidative burst. Purified monocytes are plated in 96-w plate at  $2 \times 10^5$  cell/well. Increasing concentrations of agonists or antagonists of the invention are added to the wells in a total volume of 0.2 ml culture medium (RPMI 1640 + 10% FCS, glutamine and antibiotics). After 3 days incubation, the plates are centrifuged and the medium is removed from the wells. To the macrophage monolayers, 0.2 ml per well of phenol red solution (140 mM NaCl, 10 mM potassium phosphate buffer pH 7.0, 5.5 mM dextrose, 0.56 mM phenol red and 19 U/ml of HRPO) is added, together with the stimulant (200 nM PMA). The plates are incubated at 37°C for 2 hours and the reaction is stopped by adding 20  $\mu$ l 1N NaOH per well. The absorbance is read at 610 nm. To calculate the amount of  $H_2O_2$  produced by the macrophages, a standard curve of a  $H_2O_2$  solution of known molarity is performed for each experiment.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 25: Biological Effects of Agonists or Antagonists of the Invention*

5 Astrocyte and Neuronal Assays.

Agonists or antagonists of the invention, expressed in *Escherichia coli* and purified as described above, can be tested for activity in promoting the survival, neurite outgrowth, or phenotypic differentiation of cortical neuronal cells and for inducing the proliferation of glial fibrillary acidic protein immunopositive cells, astrocytes. The selection of cortical cells for  
10 the bioassay is based on the prevalent expression of FGF-1 and FGF-2 in cortical structures and on the previously reported enhancement of cortical neuronal survival resulting from FGF-2 treatment. A thymidine incorporation assay, for example, can be used to elucidate an agonist or antagonist of the invention's activity on these cells.

Moreover, previous reports describing the biological effects of FGF-2 (basic FGF) on  
15 cortical or hippocampal neurons *in vitro* have demonstrated increases in both neuron survival and neurite outgrowth (Walicke et al., "Fibroblast growth factor promotes survival of dissociated hippocampal neurons and enhances neurite extension." *Proc. Natl. Acad. Sci. USA* 83:3012-3016. (1986), assay herein incorporated by reference in its entirety). However, reports from experiments done on PC-12 cells suggest that these two responses are not  
20 necessarily synonymous and may depend on not only which FGF is being tested but also on which receptor(s) are expressed on the target cells. Using the primary cortical neuronal culture paradigm, the ability of an agonist or antagonist of the invention to induce neurite outgrowth can be compared to the response achieved with FGF-2 using, for example, a thymidine incorporation assay.

25

Fibroblast and endothelial cell assays.

Human lung fibroblasts are obtained from Clonetics (San Diego, CA) and maintained in growth media from Clonetics. Dermal microvascular endothelial cells are obtained from Cell Applications (San Diego, CA). For proliferation assays, the human lung fibroblasts and  
30 dermal microvascular endothelial cells can be cultured at 5,000 cells/well in a 96-well plate for one day in growth medium. The cells are then incubated for one day in 0.1% BSA basal

medium. After replacing the medium with fresh 0.1% BSA medium, the cells are incubated with the test proteins for 3 days. Alamar Blue (Alamar Biosciences, Sacramento, CA) is added to each well to a final concentration of 10%. The cells are incubated for 4 hr. Cell viability is measured by reading in a CytoFluor fluorescence reader. For the PGE<sub>2</sub> assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or agonists or antagonists of the invention with or without IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for PGE<sub>2</sub> by EIA kit (Cayman, Ann Arbor, MI). For the IL-6 assays, the human lung fibroblasts are cultured at 5,000 cells/well in a 96-well plate for one day. After a medium change to 0.1% BSA basal medium, the cells are incubated with FGF-2 or with or without agonists or antagonists of the invention IL-1 $\alpha$  for 24 hours. The supernatants are collected and assayed for IL-6 by ELISA kit (Endogen, Cambridge, MA).

Human lung fibroblasts are cultured with FGF-2 or agonists or antagonists of the invention for 3 days in basal medium before the addition of Alamar Blue to assess effects on growth of the fibroblasts. FGF-2 should show a stimulation at 10 - 2500 ng/ml which can be used to compare stimulation with agonists or antagonists of the invention.

#### Parkinson Models.

The loss of motor function in Parkinson's disease is attributed to a deficiency of striatal dopamine resulting from the degeneration of the nigrostriatal dopaminergic projection neurons. An animal model for Parkinson's that has been extensively characterized involves the systemic administration of 1-methyl-4 phenyl 1,2,3,6-tetrahydropyridine (MPTP). In the CNS, MPTP is taken-up by astrocytes and catabolized by monoamine oxidase B to 1-methyl-4-phenyl pyridine (MPP<sup>+</sup>) and released. Subsequently, MPP<sup>+</sup> is actively accumulated in dopaminergic neurons by the high-affinity reuptake transporter for dopamine. MPP<sup>+</sup> is then concentrated in mitochondria by the electrochemical gradient and selectively inhibits nicotinamide adenine disphosphate: ubiquinone oxidoreductionase (complex I), thereby interfering with electron transport and eventually generating oxygen radicals.

It has been demonstrated in tissue culture paradigms that FGF-2 (basic FGF) has trophic activity towards nigral dopaminergic neurons (Ferrari et al., Dev. Biol. 1989). Recently, Dr. Unsicker's group has demonstrated that administering FGF-2 in gel foam

implants in the striatum results in the near complete protection of nigral dopaminergic neurons from the toxicity associated with MPTP exposure (Otto and Unsicker, J. Neuroscience, 1990).

Based on the data with FGF-2, agonists or antagonists of the invention can be evaluated to determine whether it has an action similar to that of FGF-2 in enhancing dopaminergic neuronal survival *in vitro* and it can also be tested *in vivo* for protection of dopaminergic neurons in the striatum from the damage associated with MPTP treatment. The potential effect of an agonist or antagonist of the invention is first examined *in vitro* in a dopaminergic neuronal cell culture paradigm. The cultures are prepared by dissecting the midbrain floor plate from gestation day 14 Wistar rat embryos. The tissue is dissociated with trypsin and seeded at a density of 200,000 cells/cm<sup>2</sup> on polyorthinine-laminin coated glass coverslips. The cells are maintained in Dulbecco's Modified Eagle's medium and F12 medium containing hormonal supplements (N1). The cultures are fixed with paraformaldehyde after 8 days *in vitro* and are processed for tyrosine hydroxylase, a specific marker for dopaminergic neurons. immunohistochemical staining. Dissociated cell cultures are prepared from embryonic rats. The culture medium is changed every third day and the factors are also added at that time.

Since the dopaminergic neurons are isolated from animals at gestation day 14, a developmental time which is past the stage when the dopaminergic precursor cells are proliferating, an increase in the number of tyrosine hydroxylase immunopositive neurons would represent an increase in the number of dopaminergic neurons surviving *in vitro*. Therefore, if an agonist or antagonist of the invention acts to prolong the survival of dopaminergic neurons, it would suggest that the agonist or antagonist may be involved in Parkinson's Disease.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 26: The Effect of Agonists or Antagonists of the Invention on the Growth of Vascular Endothelial Cells*

On day 1, human umbilical vein endothelial cells (HUVEC) are seeded at  $2-5 \times 10^4$  cells/35 mm dish density in M199 medium containing 4% fetal bovine serum (FBS), 16 units/ml heparin, and 50 units/ml endothelial cell growth supplements (ECGS, Biotechnology, Inc.). On day 2, the medium is replaced with M199 containing 10% FBS, 8 units/ml heparin.

5 An agonist or antagonist of the invention, and positive controls, such as VEGF and basic FGF (bFGF) are added, at varying concentrations. On days 4 and 6, the medium is replaced. On day 8, cell number is determined with a Coulter Counter.

An increase in the number of HUVEC cells indicates that the compound of the invention may proliferate vascular endothelial cells, while a decrease in the number of  
10 HUVEC cell indicates that the compound of the invention inhibits vascular endothelial cells.

The studies described in this example tested activity of a polypeptide of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), agonists, and/or antagonists of the invention.

#### 15 *Example 27: Rat Corneal Wound Healing Model*

This animal model shows the effect of an agonist or antagonist of the invention on neovascularization. The experimental protocol includes:

- 20 a) Making a 1-1.5 mm long incision from the center of cornea into the stromal layer.
- b) Inserting a spatula below the lip of the incision facing the outer corner of the eye.
- c) Making a pocket (its base is 1-1.5 mm from the edge of the eye).
- d) Positioning a pellet, containing 50ng- 5ug of an agonist or antagonist of the  
25 invention, within the pocket.
- e) Treatment with an agonist or antagonist of the invention can also be applied topically to the corneal wounds in a dosage range of 20mg - 500mg (daily treatment for five days).

The studies described in this example tested activity of agonists or antagonists of the  
30 invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 28: Diabetic Mouse and Glucocorticoid-Impaired Wound Healing Models*

*A. Diabetic db+/db+ Mouse Model.*

To demonstrate that an agonist or antagonist of the invention accelerates the healing process, the genetically diabetic mouse model of wound healing is used. The full thickness wound healing model in the db+/db+ mouse is a well characterized, clinically relevant and reproducible model of impaired wound healing. Healing of the diabetic wound is dependent on formation of granulation tissue and re-epithelialization rather than contraction (Gartner, M.H. *et al.*, *J. Surg. Res.* 52:389 (1992); Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)).

The diabetic animals have many of the characteristic features observed in Type II diabetes mellitus. Homozygous (db+/db+) mice are obese in comparison to their normal heterozygous (db+/+m) littermates. Mutant diabetic (db+/db+) mice have a single autosomal recessive mutation on chromosome 4 (db+) (Coleman *et al.* *Proc. Natl. Acad. Sci. USA* 77:283-293 (1982)). Animals show polyphagia, polydipsia and polyuria. Mutant diabetic mice (db+/db+) have elevated blood glucose, increased or normal insulin levels, and suppressed cell-mediated immunity (Mandel *et al.*, *J. Immunol.* 120:1375 (1978); Debray-Sachs, M. *et al.*, *Clin. Exp. Immunol.* 51(1):1-7 (1983); Leiter *et al.*, *Am. J. of Pathol.* 114:46-55 (1985)). Peripheral neuropathy, myocardial complications, and microvascular lesions, basement membrane thickening and glomerular filtration abnormalities have been described in these animals (Norido, F. *et al.*, *Exp. Neurol.* 83(2):221-232 (1984); Robertson *et al.*, *Diabetes* 29(1):60-67 (1980); Giacomelli *et al.*, *Lab Invest.* 40(4):460-473 (1979); Coleman, D.L., *Diabetes* 31 (Suppl):1-6 (1982)). These homozygous diabetic mice develop hyperglycemia that is resistant to insulin analogous to human type II diabetes (Mandel *et al.*, *J. Immunol.* 120:1375-1377 (1978)).

The characteristics observed in these animals suggests that healing in this model may be similar to the healing observed in human diabetes (Greenhalgh, *et al.*, *Am. J. of Pathol.* 136:1235-1246 (1990)).

Genetically diabetic female C57BL/KsJ (db+/db+) mice and their non-diabetic (db+/+m) heterozygous littermates are used in this study (Jackson Laboratories). The animals are purchased at 6 weeks of age and are 8 weeks old at the beginning of the study. Animals are individually housed and received food and water ad libitum. All manipulations

are performed using aseptic techniques. The experiments are conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

Wounding protocol is performed according to previously reported methods (Tsuboi, R. and Rifkin, D.B., *J. Exp. Med.* 172:245-251 (1990)). Briefly, on the day of wounding, animals are anesthetized with an intraperitoneal injection of Avertin (0.01 mg/mL), 2,2,2-tribromoethanol and 2-methyl-2-butanol dissolved in deionized water. The dorsal region of the animal is shaved and the skin washed with 70% ethanol solution and iodine. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is then created using a Keyes tissue punch. Immediately following wounding, the surrounding skin is gently stretched to eliminate wound expansion. The wounds are left open for the duration of the experiment. Application of the treatment is given topically for 5 consecutive days commencing on the day of wounding. Prior to treatment, wounds are gently cleansed with sterile saline and gauze sponges.

Wounds are visually examined and photographed at a fixed distance at the day of surgery and at two day intervals thereafter. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

An agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology and immunohistochemistry. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

Three groups of 10 animals each (5 diabetic and 5 non-diabetic controls) are evaluated: 1) Vehicle placebo control, 2) untreated group, and 3) treated group.

Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total square area of the wound. Contraction is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are

made using the following formula:

$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

- 5 Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using a Reichert-Jung microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds are used to assess whether the healing process and the morphologic appearance of the repaired skin is altered by treatment with an
- 10 agonist or antagonist of the invention. This assessment included verification of the presence of cell accumulation, inflammatory cells, capillaries, fibroblasts, re-epithelialization and epidermal maturity (Greenhalgh, D.G. *et al.*, *Am. J. Pathol.* 136:1235 (1990)). A calibrated lens micrometer is used by a blinded observer.

- Tissue sections are also stained immunohistochemically with a polyclonal rabbit anti-
- 15 human keratin antibody using ABC Elite detection system. Human skin is used as a positive tissue control while non-immune IgG is used as a negative control. Keratinocyte growth is determined by evaluating the extent of reepithelialization of the wound using a calibrated lens micrometer.

- Proliferating cell nuclear antigen/cyclin (PCNA) in skin specimens is demonstrated
- 20 by using anti-PCNA antibody (1:50) with an ABC Elite detection system. Human colon cancer served as a positive tissue control and human brain tissue is used as a negative tissue control. Each specimen included a section with omission of the primary antibody and substitution with non-immune mouse IgG. Ranking of these sections is based on the extent of proliferation on a scale of 0-8, the lower side of the scale reflecting slight proliferation to
- 25 the higher side reflecting intense proliferation.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is considered significant.

#### *B. Steroid Impaired Rat Model*

- 30 The inhibition of wound healing by steroids has been well documented in various *in vitro* and *in vivo* systems (Wahl, Glucocorticoids and Wound healing. In: Anti-Inflammatory Steroid Action: Basic and Clinical Aspects. 280-302 (1989); Wahlet *al.*, *J. Immunol.* 115: 476-481



(1975); Werb *et al.*, *J. Exp. Med.* 147:1684-1694 (1978)). Glucocorticoids retard wound healing by inhibiting angiogenesis, decreasing vascular permeability (Ebert *et al.*, *An. Intern. Med.* 37:701-705 (1952)), fibroblast proliferation, and collagen synthesis (Beck *et al.*, *Growth Factors*. 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978)) and producing a transient reduction of circulating monocytes (Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", *In: Antiinflammatory Steroid Action: Basic and Clinical Aspects*, Academic Press, New York, pp. 280-302 (1989)). The systemic administration of steroids to impaired wound healing is a well establish phenomenon in rats (Beck *et al.*, *Growth Factors*. 5: 295-304 (1991); Haynes *et al.*, *J. Clin. Invest.* 61: 703-797 (1978); Wahl, "Glucocorticoids and wound healing", *In: Antiinflammatory Steroid Action: Basic and Clinical Aspects*, Academic Press, New York, pp. 280-302 (1989); Pierce *et al.*, *Proc. Natl. Acad. Sci. USA* 86: 2229-2233 (1989)).

To demonstrate that an agonist or antagonist of the invention can accelerate the healing process, the effects of multiple topical applications of the agonist or antagonist on full thickness excisional skin wounds in rats in which healing has been impaired by the systemic administration of methylprednisolone is assessed.

Young adult male Sprague Dawley rats weighing 250-300 g (Charles River Laboratories) are used in this example. The animals are purchased at 8 weeks of age and are 9 weeks old at the beginning of the study. The healing response of rats is impaired by the systemic administration of methylprednisolone (17mg/kg/rat intramuscularly) at the time of wounding. Animals are individually housed and received food and water *ad libitum*. All manipulations are performed using aseptic techniques. This study is conducted according to the rules and guidelines of Human Genome Sciences, Inc. Institutional Animal Care and Use Committee and the Guidelines for the Care and Use of Laboratory Animals.

The wounding protocol is followed according to section A, above. On the day of wounding, animals are anesthetized with an intramuscular injection of ketamine (50 mg/kg) and xylazine (5 mg/kg). The dorsal region of the animal is shaved and the skin washed with 70% ethanol and iodine solutions. The surgical area is dried with sterile gauze prior to wounding. An 8 mm full-thickness wound is created using a Keyes tissue punch. The wounds are left open for the duration of the experiment. Applications of the testing materials are given topically once a day for 7 consecutive days commencing on the day of wounding and subsequent to methylprednisolone administration. Prior to treatment, wounds are gently

cleansed with sterile saline and gauze sponges.

Wounds are visually examined and photographed at a fixed distance at the day of wounding and at the end of treatment. Wound closure is determined by daily measurement on days 1-5 and on day 8. Wounds are measured horizontally and vertically using a calibrated Jameson caliper. Wounds are considered healed if granulation tissue is no longer visible and the wound is covered by a continuous epithelium.

The agonist or antagonist of the invention is administered using at a range different doses, from 4mg to 500mg per wound per day for 8 days in vehicle. Vehicle control groups received 50mL of vehicle solution.

Animals are euthanized on day 8 with an intraperitoneal injection of sodium pentobarbital (300mg/kg). The wounds and surrounding skin are then harvested for histology. Tissue specimens are placed in 10% neutral buffered formalin in tissue cassettes between biopsy sponges for further processing.

Four groups of 10 animals each (5 with methylprednisolone and 5 without glucocorticoid) are evaluated: 1) Untreated group 2) Vehicle placebo control 3) treated groups.

Wound closure is analyzed by measuring the area in the vertical and horizontal axis and obtaining the total area of the wound. Closure is then estimated by establishing the differences between the initial wound area (day 0) and that of post treatment (day 8). The wound area on day 1 is 64mm<sup>2</sup>, the corresponding size of the dermal punch. Calculations are made using the following formula:

$$[\text{Open area on day 8}] - [\text{Open area on day 1}] / [\text{Open area on day 1}]$$

Specimens are fixed in 10% buffered formalin and paraffin embedded blocks are sectioned perpendicular to the wound surface (5mm) and cut using an Olympus microtome. Routine hematoxylin-eosin (H&E) staining is performed on cross-sections of bisected wounds. Histologic examination of the wounds allows assessment of whether the healing process and the morphologic appearance of the repaired skin is improved by treatment with an agonist or antagonist of the invention. A calibrated lens micrometer is used by a blinded observer to determine the distance of the wound gap.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is

considered significant.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

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*Example 29: Lymphadema Animal Model*

The purpose of this experimental approach is to create an appropriate and consistent lymphedema model for testing the therapeutic effects of an agonist or antagonist of the invention in lymphangiogenesis and re-establishment of the lymphatic circulatory system in the rat hind limb. Effectiveness is measured by swelling volume of the affected limb, quantification of the amount of lymphatic vasculature, total blood plasma protein, and histopathology. Acute lymphedema is observed for 7-10 days. Perhaps more importantly, the chronic progress of the edema is followed for up to 3-4 weeks.

15 Prior to beginning surgery, blood sample is drawn for protein concentration analysis. Male rats weighing approximately ~350g are dosed with Pentobarbital. Subsequently, the right legs are shaved from knee to hip. The shaved area is swabbed with gauze soaked in 70% EtOH. Blood is drawn for serum total protein testing. Circumference and volumetric measurements are made prior to injecting dye into paws after marking 2 measurement levels  
20 (0.5 cm above heel, at mid-pt of dorsal paw). The intradermal dorsum of both right and left paws are injected with 0.05 ml of 1% Evan's Blue. Circumference and volumetric measurements are then made following injection of dye into paws.

Using the knee joint as a landmark, a mid-leg inguinal incision is made circumferentially allowing the femoral vessels to be located. Forceps and hemostats are used  
25 to dissect and separate the skin flaps. After locating the femoral vessels, the lymphatic vessel that runs along side and underneath the vessel(s) is located. The main lymphatic vessels in this area are then electrically coagulated or suture ligated.

Using a microscope, muscles in back of the leg (near the semitendinosus and adductors) are bluntly dissected. The popliteal lymph node is then located. The 2 proximal  
30 and 2 distal lymphatic vessels and distal blood supply of the popliteal node are then and ligated by suturing. The popliteal lymph node, and any accompanying adipose tissue, is then removed by cutting connective tissues.

Care is taken to control any mild bleeding resulting from this procedure. After lymphatics are occluded, the skin flaps are sealed by using liquid skin (Vetbond) (AJ Buck). The separated skin edges are sealed to the underlying muscle tissue while leaving a gap of ~0.5 cm around the leg. Skin also may be anchored by suturing to underlying muscle when  
5 necessary.

To avoid infection, animals are housed individually with mesh (no bedding). Recovering animals are checked daily through the optimal edematous peak, which typically occurred by day 5-7. The plateau edematous peak are then observed. To evaluate the intensity of the lymphedema, the circumference and volumes of 2 designated places on each  
10 paw before operation and daily for 7 days are measured. The effect plasma proteins on lymphedema is determined and whether protein analysis is a useful testing perimeter is also investigated. The weights of both control and edematous limbs are evaluated at 2 places. Analysis is performed in a blind manner.

Circumference Measurements: Under brief gas anesthetic to prevent limb movement,  
15 a cloth tape is used to measure limb circumference. Measurements are done at the ankle bone and dorsal paw by 2 different people then those 2 readings are averaged. Readings are taken from both control and edematous limbs.

Volumetric Measurements: On the day of surgery, animals are anesthetized with Pentobarbital and are tested prior to surgery. For daily volumetrics animals are under brief  
20 halothane anesthetic (rapid immobilization and quick recovery), both legs are shaved and equally marked using waterproof marker on legs. Legs are first dipped in water, then dipped into instrument to each marked level then measured by Buxco edema software(Chen/Victor). Data is recorded by one person, while the other is dipping the limb to marked area.

Blood-plasma protein measurements: Blood is drawn, spun, and serum separated  
25 prior to surgery and then at conclusion for total protein and  $\text{Ca}^{2+}$  comparison.

Limb Weight Comparison: After drawing blood, the animal is prepared for tissue collection. The limbs are amputated using a quillitine, then both experimental and control legs are cut at the ligature and weighed. A second weighing is done as the tibio-cacaneal joint is disarticulated and the foot is weighed.

30 Histological Preparations: The transverse muscle located behind the knee (popliteal) area is dissected and arranged in a metal mold, filled with freezeGel, dipped into cold methylbutane, placed into labeled sample bags at - 80EC until sectioning. Upon sectioning,

the muscle is observed under fluorescent microscopy for lymphatics..

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

5

*Example 30: Suppression of TNF alpha-induced adhesion molecule expression by a Agonist or Antagonist of the Invention*

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves  
10 specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial  
15 leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Tumor necrosis factor alpha (TNF-a), a potent proinflammatory cytokine, is a  
20 stimulator of all three CAMs on endothelial cells and may be involved in a wide variety of inflammatory responses, often resulting in a pathological outcome.

The potential of an agonist or antagonist of the invention to mediate a suppression of TNF-a induced CAM expression can be examined. A modified ELISA assay which uses ECs as a solid phase absorbent is employed to measure the amount of CAM expression on TNF-a  
25 treated ECs when co-stimulated with a member of the FGF family of proteins.

To perform the experiment, human umbilical vein endothelial cell (HUVEC) cultures are obtained from pooled cord harvests and maintained in growth medium (EGM-2; Clonetics, San Diego, CA) supplemented with 10% FCS and 1% penicillin/streptomycin in a 37 degree C humidified incubator containing 5% CO<sub>2</sub>. HUVECs are seeded in 96-well  
30 plates at concentrations of  $1 \times 10^4$  cells/well in EGM medium at 37 degree C for 18-24 hrs or until confluent. The monolayers are subsequently washed 3 times with a serum-free solution of RPMI-1640 supplemented with 100 U/ml penicillin and 100 mg/ml streptomycin, and

treated with a given cytokine and/or growth factor(s) for 24 h at 37 degree C. Following incubation, the cells are then evaluated for CAM expression.

Human Umbilical Vein Endothelial cells (HUVECs) are grown in a standard 96 well plate to confluence. Growth medium is removed from the cells and replaced with 90 ul of 199 Medium (10% FBS). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 ul volumes). Plates are incubated at 37 degree C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 µl of 0.1% paraformaldehyde-PBS(with Ca<sup>++</sup> and Mg<sup>++</sup>) is added to each well. Plates are held at 4°C for 30 min.

Fixative is then removed from the wells and wells are washed 1X with PBS(+Ca,Mg)+0.5% BSA and drained. Do not allow the wells to dry. Add 10 µl of diluted primary antibody to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 µg/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA.

Then add 20 µl of diluted ExtrAvidin-Alkaline Phosphatase (1:5,000 dilution) to each well and incubated at 37°C for 30 min. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA. 1 tablet of p-Nitrophenol Phosphate pNPP is dissolved in 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer: 1:5,000 ( $10^0$ ) >  $10^{-0.5}$  >  $10^{-1}$  >  $10^{-1.5}$ . 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent must then be added to each of the standard wells. The plate must be incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The results are quantified on a plate reader at 405 nm. The background subtraction option is used on blank wells filled with glycine buffer only. The template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

*Example 31: Production Of Polypeptide of the Invention For High-Throughput Screening Assays*

The following protocol produces a supernatant containing polypeptide of the present invention to be tested. This supernatant can then be used in the Screening Assays described in Examples 33-42.

First, dilute Poly-D-Lysine (644 587 Boehringer-Mannheim) stock solution (1mg/ml in PBS) 1:20 in PBS (w/o calcium or magnesium 17-516F Biowhittaker) for a working solution of 50ug/ml. Add 200 ul of this solution to each well (24 well plates) and incubate at RT for 20 minutes. Be sure to distribute the solution over each well (note: a 12-channel pipetter may be used with tips on every other channel). Aspirate off the Poly-D-Lysine solution and rinse with 1ml PBS (Phosphate Buffered Saline). The PBS should remain in the well until just prior to plating the cells and plates may be poly-lysine coated in advance for up to two weeks.

Plate 293T cells (do not carry cells past P+20) at  $2 \times 10^5$  cells/well in .5ml DMEM(Dulbecco's Modified Eagle Medium)(with 4.5 G/L glucose and L-glutamine (12-604F Biowhittaker))/10% heat inactivated FBS(14-503F Biowhittaker)/1x Penstrep(17-602E Biowhittaker). Let the cells grow overnight.

The next day, mix together in a sterile solution basin: 300 ul Lipofectamine (18324-012 Gibco/BRL) and 5ml Optimem I (31985070 Gibco/BRL)/96-well plate. With a small volume multi-channel pipetter, aliquot approximately 2ug of an expression vector containing a polynucleotide insert, produced by the methods described in Examples 8-10, into an appropriately labeled 96-well round bottom plate. With a multi-channel pipetter, add 50ul of the Lipofectamine/Optimem I mixture to each well. Pipette up and down gently to mix. Incubate at RT 15-45 minutes. After about 20 minutes, use a multi-channel pipetter to add 150ul Optimem I to each well. As a control, one plate of vector DNA lacking an insert should be transfected with each set of transfections.

Preferably, the transfection should be performed by tag-teaming the following tasks. By tag-teaming, hands on time is cut in half, and the cells do not spend too much time on PBS. First, person A aspirates off the media from four 24-well plates of cells, and then person B rinses each well with .5-1ml PBS. Person A then aspirates off PBS rinse, and person B, using a 12-channel pipetter with tips on every other channel, adds the 200ul of

DNA/Lipofectamine/Optimem I complex to the odd wells first, then to the even wells, to each row on the 24-well plates. Incubate at 37 degree C for 6 hours.

While cells are incubating, prepare appropriate media, either 1%BSA in DMEM with 1x penstrep, or HGS CHO-5 media (116.6 mg/L of CaCl<sub>2</sub> (anhyd); 0.00130 mg/L CuSO<sub>4</sub>-5H<sub>2</sub>O; 0.050 mg/L of Fe(NO<sub>3</sub>)<sub>3</sub>-9H<sub>2</sub>O; 0.417 mg/L of FeSO<sub>4</sub>-7H<sub>2</sub>O; 311.80 mg/L of KCl; 28.64 mg/L of MgCl<sub>2</sub>; 48.84 mg/L of MgSO<sub>4</sub>; 6995.50 mg/L of NaCl; 2400.0 mg/L of NaHCO<sub>3</sub>; 62.50 mg/L of NaH<sub>2</sub>PO<sub>4</sub>-H<sub>2</sub>O; 71.02 mg/L of Na<sub>2</sub>HPO<sub>4</sub>; 4320 mg/L of ZnSO<sub>4</sub>-7H<sub>2</sub>O; .002 mg/L of Arachidonic Acid ; 1.022 mg/L of Cholesterol; .070 mg/L of DL-alpha-Tocopherol-Acetate; 0.0520 mg/L of Linoleic Acid; 0.010 mg/L of Linolenic Acid; 0.010 mg/L of Myristic Acid; 0.010 mg/L of Oleic Acid; 0.010 mg/L of Palmitic Acid; 0.010 mg/L of Palmitic Acid; 100 mg/L of Pluronic F-68; 0.010 mg/L of Stearic Acid; 2.20 mg/L of Tween 80; 4551 mg/L of D-Glucose; 130.85 mg/ml of L- Alanine; 147.50 mg/ml of L-Arginine-HCL; 7.50 mg/ml of L-Asparagine-H<sub>2</sub>O; 6.65 mg/ml of L-Aspartic Acid; 29.56 mg/ml of L-Cystine-2HCL-H<sub>2</sub>O; 31.29 mg/ml of L-Cystine-2HCL; 7.35 mg/ml of L-Glutamic Acid; 365.0 mg/ml of L-Glutamine; 18.75 mg/ml of Glycine; 52.48 mg/ml of L-Histidine-HCL-H<sub>2</sub>O; 106.97 mg/ml of L-Isoleucine; 111.45 mg/ml of L-Leucine; 163.75 mg/ml of L-Lysine HCL; 32.34 mg/ml of L-Methionine; 68.48 mg/ml of L-Phenylalanine; 40.0 mg/ml of L-Proline; 26.25 mg/ml of L-Serine; 101.05 mg/ml of L-Threonine; 19.22 mg/ml of L-Tryptophan; 91.79 mg/ml of L-Tyrosine-2Na-2H<sub>2</sub>O; and 99.65 mg/ml of L-Valine; 0.0035 mg/L of Biotin; 3.24 mg/L of D-Ca Pantothenate; 11.78 mg/L of Choline Chloride; 4.65 mg/L of Folic Acid; 15.60 mg/L of i-Inositol; 3.02 mg/L of Niacinamide; 3.00 mg/L of Pyridoxal HCL; 0.031 mg/L of Pyridoxine HCL; 0.319 mg/L of Riboflavin; 3.17 mg/L of Thiamine HCL; 0.365 mg/L of Thymidine; 0.680 mg/L of Vitamin B<sub>12</sub>; 25 mM of HEPES Buffer; 2.39 mg/L of Na Hypoxanthine; 0.105 mg/L of Lipoic Acid; 0.081 mg/L of Sodium Putrescine-2HCL; 55.0 mg/L of Sodium Pyruvate; 0.0067 mg/L of Sodium Selenite; 20uM of Ethanolamine; 0.122 mg/L of Ferric Citrate; 41.70 mg/L of Methyl-B-Cyclodextrin complexed with Linoleic Acid; 33.33 mg/L of Methyl-B-Cyclodextrin complexed with Oleic Acid; 10 mg/L of Methyl-B-Cyclodextrin complexed with Retinal Acetate. Adjust osmolarity to 327 mOsm) with 2mm glutamine and 1x penstrep. (BSA (81-068-3 Bayer) 100gm dissolved in 1L DMEM for a 10% BSA stock solution). Filter the media and collect 50 ul for endotoxin assay in 15ml polystyrene conical.



The transfection reaction is terminated, preferably by tag-teaming, at the end of the incubation period. Person A aspirates off the transfection media, while person B adds 1.5ml appropriate media to each well. Incubate at 37 degree C for 45 or 72 hours depending on the media used: 1%BSA for 45 hours or CHO-5 for 72 hours.

- 5        On day four, using a 300ul multichannel pipetter, aliquot 600ul in one 1ml deep well plate and the remaining supernatant into a 2ml deep well. The supernatants from each well can then be used in the assays described in Examples 33-40.

10       It is specifically understood that when activity is obtained in any of the assays described below using a supernatant, the activity originates from either the polypeptide of the present invention directly (e.g., as a secreted protein) or by polypeptide of the present invention inducing expression of other proteins, which are then secreted into the supernatant. Thus, the invention further provides a method of identifying the protein in the supernatant characterized by an activity in a particular assay.

15       *Example 32: Construction of GAS Reporter Construct*

One signal transduction pathway involved in the differentiation and proliferation of cells is called the Jaks-STATs pathway. Activated proteins in the Jaks-STATs pathway bind to gamma activation site "GAS" elements or interferon-sensitive responsive element ("ISRE"), located in the promoter of many genes. The binding of a protein to these elements alter the expression of the associated gene.

25       GAS and ISRE elements are recognized by a class of transcription factors called Signal Transducers and Activators of Transcription, or "STATs." There are six members of the STATs family. Stat1 and Stat3 are present in many cell types, as is Stat2 (as response to IFN-alpha is widespread). Stat4 is more restricted and is not in many cell types though it has been found in T helper class I, cells after treatment with IL-12. Stat5 was originally called mammary growth factor, but has been found at higher concentrations in other cells including myeloid cells. It can be activated in tissue culture cells by many cytokines.

30       The STATs are activated to translocate from the cytoplasm to the nucleus upon tyrosine phosphorylation by a set of kinases known as the Janus Kinase ("Jaks") family. Jaks represent a distinct family of soluble tyrosine kinases and include Tyk2, Jak1, Jak2, and Jak3. These kinases display significant sequence similarity and are generally catalytically inactive

in resting cells.

The Jaks are activated by a wide range of receptors summarized in the Table below. (Adapted from review by Schidler and Darnell, Ann. Rev. Biochem. 64:621-51 (1995).) A cytokine receptor family, capable of activating Jaks, is divided into two groups: (a) Class 1 includes receptors for IL-2, IL-3, IL-4, IL-6, IL-7, IL-9, IL-11, IL-12, IL-15, Epo, PRL, GH, G-CSF, GM-CSF, LIF, CNTF, and thrombopoietin; and (b) Class 2 includes IFN-a, IFN-g, and IL-10. The Class 1 receptors share a conserved cysteine motif (a set of four conserved cysteines and one tryptophan) and a WSXWS motif (a membrane proximal region encoding Trp-Ser-Xxx-Trp-Ser (SEQ ID NO:1882)).

Thus, on binding of a ligand to a receptor, Jaks are activated, which in turn activate STATs, which then translocate and bind to GAS elements. This entire process is encompassed in the Jaks-STATs signal transduction pathway.

Therefore, activation of the Jaks-STATs pathway, reflected by the binding of the GAS or the ISRE element, can be used to indicate proteins involved in the proliferation and differentiation of cells. For example, growth factors and cytokines are known to activate the Jaks-STATs pathway. (See Table below.) Thus, by using GAS elements linked to reporter molecules, activators of the Jaks-STATs pathway can be identified.

	<u>Ligand</u>	<u>JAKs</u>				<u>STATs GAS(elements) or ISRE</u>	
		<u>tyk2</u>	<u>Jak1</u>	<u>Jak2</u>	<u>Jak3</u>		
	<u>IFN family</u>						
5	IFN-a/B	+	+	-	-	1,2,3	ISRE
	IFN-g (IRF1>Lys6>IFP)		+	+	-	1	GAS
	IL-10	+	?	?	-	1,3	
10	<u>gp130 family</u>						
	IL-6 (Pleiotrohic) (IRF1>Lys6>IFP)	+	+	+	?	1,3	GAS
	IL-11 (Pleiotrohic)	?	+	?	?	1,3	
	OnM (Pleiotrohic)	?	+	+	?	1,3	
15	LIF (Pleiotrohic)	?	+	+	?	1,3	
	CNTF (Pleiotrohic)	-/+	+	+	?	1,3	
	G-CSF (Pleiotrohic)	?	+	?	?	1,3	
	IL-12 (Pleiotrohic)	+	-	+	+	1,3	
20	<u>g-C family</u>						
	IL-2 (lymphocytes)	-	+	-	+	1,3,5	GAS
	IL-4 (lymph/myeloid) >>Ly6)(IgH)	-	+	-	+	6	GAS (IRF1 = IFP
	IL-7 (lymphocytes)	-	+	-	+	5	GAS
25	IL-9 (lymphocytes)	-	+	-	+	5	GAS
	IL-13 (lymphocyte)	-	+	?	?	6	GAS
	IL-15	?	+	?	+	5	GAS
	<u>gp140 family</u>						
30	IL-3 (myeloid) (IRF1>IFP>>Ly6)	-	-	+	-	5	GAS
	IL-5 (myeloid)	-	-	+	-	5	GAS
	GM-CSF (myeloid)	-	-	+	-	5	GAS

Growth hormone family

	GH	?	-	+	-	5	
	PRL	?	+/-	+	-	1,3,5	
5	EPO	?	-	+	-	5	GAS(B-
	CAS>IRF1=IFP>>Ly6)						

Receptor Tyrosine Kinases

10	EGF	?	+	+	-	1,3	GAS (IRF1)
	PDGF	?	+	+	-	1,3	
	CSF-1	?	+	+	-	1,3	GAS (not IRF1)

To construct a synthetic GAS containing promoter element, which is used in the Biological Assays described in Examples 33-34, a PCR based strategy is employed to generate a GAS-SV40 promoter sequence. The 5' primer contains four tandem copies of the GAS binding site found in the IRF1 promoter and previously demonstrated to bind STATs upon induction with a range of cytokines (Rothman et al., Immunity 1:457-468 (1994).), although other GAS or ISRE elements can be used instead. The 5' primer also contains 18bp of sequence complementary to the SV40 early promoter sequence and is flanked with an XhoI site. The sequence of the 5' primer is:

10 5':GCGCCTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCC  
GAAATGATTTCCCCGAAATATCTGCCATCTCAATTAG:3' (SEQ ID NO:1883)

The downstream primer is complementary to the SV40 promoter and is flanked with a Hind III site: 5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1884)

15 PCR amplification is performed using the SV40 promoter template present in the B-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI/Hind III and subcloned into BLSK2-. (Stratagene.) Sequencing with forward and reverse primers confirms that the insert contains the following sequence:

20 5':CTCGAGATTTCCCCGAAATCTAGATTTCCCCGAAATGATTTCCCCGAAA  
TGATTTCCCCGAAATATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCG  
CCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCT  
CCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCC  
TCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTA  
25 GGCTTTTGCAAAAAAGCTT:3' (SEQ ID NO:1885)

With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter  
30 molecules that can be used instead of SEAP include chloramphenicol

acetyltransferase (CAT), luciferase, alkaline phosphatase, B-galactosidase, green fluorescent protein (GFP), or any protein detectable by an antibody.

The above sequence confirmed synthetic GAS-SV40 promoter element is subcloned into the pSEAP-Promoter vector obtained from Clontech using HindIII and XhoI, effectively replacing the SV40 promoter with the amplified GAS:SV40 promoter element, to create the GAS-SEAP vector. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

Thus, in order to generate mammalian stable cell lines expressing the GAS-SEAP reporter, the GAS-SEAP cassette is removed from the GAS-SEAP vector using Sall and NotI, and inserted into a backbone vector containing the neomycin resistance gene, such as pGFP-1 (Clontech), using these restriction sites in the multiple cloning site, to create the GAS-SEAP/Neo vector. Once this vector is transfected into mammalian cells, this vector can then be used as a reporter molecule for GAS binding as described in Examples 33-34.

Other constructs can be made using the above description and replacing GAS with a different promoter sequence. For example, construction of reporter molecules containing NFK-B and EGR promoter sequences are described in Examples 35 and 36. However, many other promoters can be substituted using the protocols described in these Examples. For instance, SRE, IL-2, NFAT, or Osteocalcin promoters can be substituted, alone or in combination (e.g., GAS/NF-KB/EGR, GAS/NF-KB, IL-2/NFAT, or NF-KB/GAS). Similarly, other cell lines can be used to test reporter construct activity, such as HELA (epithelial), HUVEC (endothelial), Reh (B-cell), Saos-2 (osteoblast), HUVAC (aortic), or Cardiomyocyte.

*Example 33: High-Throughput Screening Assay for T-cell Activity.*

The following protocol is used to assess T-cell activity by identifying factors, and determining whether supernate containing a polypeptide of the invention proliferates and/or differentiates T-cells. T-cell activity is assessed using the

GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The T-cell used in this assay is Jurkat T-cells (ATCC Accession No. TIB-152), although Molt-3 cells (ATCC Accession No. CRL-1552) and Molt-4 cells (ATCC  
5 Accession No. CRL-1582) cells can also be used.

Jurkat T-cells are lymphoblastic CD4+ Th1 helper cells. In order to generate stable cell lines, approximately 2 million Jurkat cells are transfected with the GAS-SEAP/neo vector using DMRIE-C (Life Technologies)(transfection procedure described below). The transfected cells are seeded to a density of approximately  
10 20,000 cells per well and transfectants resistant to 1 mg/ml gentamicin selected. Resistant colonies are expanded and then tested for their response to increasing concentrations of interferon gamma. The dose response of a selected clone is demonstrated.

Specifically, the following protocol will yield sufficient cells for 75 wells  
15 containing 200 ul of cells. Thus, it is either scaled up, or performed in multiple to generate sufficient cells for multiple 96 well plates. Jurkat cells are maintained in RPMI + 10% serum with 1%Pen-Strep. Combine 2.5 mls of OPTI-MEM (Life Technologies) with 10 ug of plasmid DNA in a T25 flask. Add 2.5 ml OPTI-MEM containing 50 ul of DMRIE-C and incubate at room temperature for 15-45 mins.

20 During the incubation period, count cell concentration, spin down the required number of cells ( $10^7$  per transfection), and resuspend in OPTI-MEM to a final concentration of  $10^7$  cells/ml. Then add 1ml of  $1 \times 10^7$  cells in OPTI-MEM to T25 flask and incubate at 37 degree C for 6 hrs. After the incubation, add 10 ml of RPMI + 15% serum.

25 The Jurkat:GAS-SEAP stable reporter lines are maintained in RPMI + 10% serum, 1 mg/ml Gentamicin, and 1% Pen-Strep. These cells are treated with supernatants containing polypeptide of the present invention or polypeptide of the present invention induced polypeptides as produced by the protocol described in Example 31.

30 On the day of treatment with the supernatant, the cells should be washed and

resuspended in fresh RPMI + 10% serum to a density of 500,000 cells per ml. The exact number of cells required will depend on the number of supernatants being screened. For one 96 well plate, approximately 10 million cells (for 10 plates, 100 million cells) are required.

5           Transfer the cells to a triangular reservoir boat, in order to dispense the cells into a 96 well dish, using a 12 channel pipette. Using a 12 channel pipette, transfer 200 ul of cells into each well (therefore adding 100, 000 cells per well).

          After all the plates have been seeded, 50 ul of the supernatants are transferred directly from the 96 well plate containing the supernatants into each well using a 12  
10   channel pipette. In addition, a dose of exogenous interferon gamma (0.1, 1.0, 10 ng) is added to wells H9, H10, and H11 to serve as additional positive controls for the assay.

          The 96 well dishes containing Jurkat cells treated with supernatants are placed in an incubator for 48 hrs (note: this time is variable between 48-72 hrs). 35 ul  
15   samples from each well are then transferred to an opaque 96 well plate using a 12 channel pipette. The opaque plates should be covered (using sellophene covers) and stored at -20 degree C until SEAP assays are performed according to Example 37. The plates containing the remaining treated cells are placed at 4 degree C and serve as a source of material for repeating the assay on a specific well if desired.

20           As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate Jurkat T cells. Over 30 fold induction is typically observed in the positive control wells.

          The above protocol may be used in the generation of both transient, as well as, stable transfected cells, which would be apparent to those of skill in the art.

25

*Example 34: High-Throughput Screening Assay Identifying Myeloid Activity*

          The following protocol is used to assess myeloid activity of polypeptide of the present invention by determining whether polypeptide of the present invention  
30   proliferates and/or differentiates myeloid cells. Myeloid cell activity is assessed using



the GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The myeloid cell used in this assay is U937, a pre-monocyte cell line, although TF-1, HL60, or KG1 can be used.

- 5 To transiently transfect U937 cells with the GAS/SEAP/Neo construct produced in Example 32, a DEAE-Dextran method (Kharbanda et. al., 1994, Cell Growth & Differentiation, 5:259-265) is used. First, harvest  $2 \times 10^7$  U937 cells and wash with PBS. The U937 cells are usually grown in RPMI 1640 medium containing 10% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml  
10 penicillin and 100 mg/ml streptomycin.

Next, suspend the cells in 1 ml of 20 mM Tris-HCl (pH 7.4) buffer containing 0.5 mg/ml DEAE-Dextran, 8 ug GAS-SEAP2 plasmid DNA, 140 mM NaCl, 5 mM KCl, 375 uM  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ , 1 mM  $\text{MgCl}_2$ , and 675 uM  $\text{CaCl}_2$ . Incubate at 37 degrees C for 45 min.

- 15 Wash the cells with RPMI 1640 medium containing 10% FBS and then resuspend in 10 ml complete medium and incubate at 37 degree C for 36 hr.

The GAS-SEAP/U937 stable cells are obtained by growing the cells in 400 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 400 ug/ml G418 for couple of passages.

- 20 These cells are tested by harvesting  $1 \times 10^8$  cells (this is enough for ten 96-well plates assay) and wash with PBS. Suspend the cells in 200 ml above described growth medium, with a final density of  $5 \times 10^5$  cells/ml. Plate 200 ul cells per well in the 96-well plate (or  $1 \times 10^5$  cells/well).

- Add 50 ul of the supernatant prepared by the protocol described in Example  
25 31. Incubate at 37 degree C for 48 to 72 hr. As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate U937 cells. Over 30 fold induction is typically observed in the positive control wells. SEAP assay the supernatant according to the protocol described in Example 37.

- 30 *Example 35: High-Throughput Screening Assay Identifying Neuronal Activity.*

When cells undergo differentiation and proliferation, a group of genes are activated through many different signal transduction pathways. One of these genes, EGR1 (early growth response gene 1), is induced in various tissues and cell types upon activation. The promoter of EGR1 is responsible for such induction. Using the EGR1 promoter linked to reporter molecules, activation of cells can be assessed by polypeptide of the present invention.

Particularly, the following protocol is used to assess neuronal activity in PC12 cell lines. PC12 cells (rat pheochromocytoma cells) are known to proliferate and/or differentiate by activation with a number of mitogens, such as TPA (tetradecanoyl phorbol acetate), NGF (nerve growth factor), and EGF (epidermal growth factor). The EGR1 gene expression is activated during this treatment. Thus, by stably transfecting PC12 cells with a construct containing an EGR promoter linked to SEAP reporter, activation of PC12 cells by polypeptide of the present invention can be assessed.

The EGR/SEAP reporter construct can be assembled by the following protocol. The EGR-1 promoter sequence (-633 to +1)(Sakamoto K et al., Oncogene 6:867-871 (1991)) can be PCR amplified from human genomic DNA using the following primers:

5' GCGCTCGAGGGATGACAGCGATAGAACCCCGG -3' (SEQ ID NO: 1886)

5' GCGAAGCTTCGCGACTCCCCGGATCCGCCTC-3' (SEQ ID NO: 1887)

Using the GAS:SEAP/Neo vector produced in Example 32, EGR1 amplified product can then be inserted into this vector. Linearize the GAS:SEAP/Neo vector using restriction enzymes XhoI/HindIII, removing the GAS/SV40 stuffer. Restrict the EGR1 amplified product with these same enzymes. Ligate the vector and the EGR1 promoter.

To prepare 96 well-plates for cell culture, two mls of a coating solution (1:30 dilution of collagen type I (Upstate Biotech Inc. Cat#08-115) in 30% ethanol (filter

sterilized)) is added per one 10 cm plate or 50 ml per well of the 96-well plate, and allowed to air dry for 2 hr.

PC12 cells are routinely grown in RPMI-1640 medium (Bio Whittaker) containing 10% horse serum (JRH BIOSCIENCES, Cat. # 12449-78P), 5% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 ug/ml streptomycin on a precoated 10 cm tissue culture dish. One to four split is done every three to four days. Cells are removed from the plates by scraping and resuspended with pipetting up and down for more than 15 times.

Transfect the EGR/SEAP/Neo construct into PC12 using the Lipofectamine protocol described in Example 31. EGR-SEAP/PC12 stable cells are obtained by growing the cells in 300 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 300 ug/ml G418 for couple of passages.

To assay for neuronal activity, a 10 cm plate with cells around 70 to 80% confluent is screened by removing the old medium. Wash the cells once with PBS (Phosphate buffered saline). Then starve the cells in low serum medium (RPMI-1640 containing 1% horse serum and 0.5% FBS with antibiotics) overnight.

The next morning, remove the medium and wash the cells with PBS. Scrape off the cells from the plate, suspend the cells well in 2 ml low serum medium. Count the cell number and add more low serum medium to reach final cell density as  $5 \times 10^5$  cells/ml.

Add 200 ul of the cell suspension to each well of 96-well plate (equivalent to  $1 \times 10^5$  cells/well). Add 50 ul supernatant produced by Example 31, 37 degree C for 48 to 72 hr. As a positive control, a growth factor known to activate PC12 cells through EGR can be used, such as 50 ng/ul of Neuronal Growth Factor (NGF). Over fifty-fold induction of SEAP is typically seen in the positive control wells. SEAP assay the supernatant according to Example 37.

*Example 36: High-Throughput Screening Assay for T-cell Activity*

NF-KB (Nuclear Factor KB) is a transcription factor activated by a wide variety of agents including the inflammatory cytokines IL-1 and TNF, CD30 and CD40, lymphotoxin-alpha and lymphotoxin-beta, by exposure to LPS or thrombin, and by expression of certain viral gene products. As a transcription factor, NF-KB regulates the expression of genes involved in immune cell activation, control of apoptosis (NF-KB appears to shield cells from apoptosis), B and T-cell development, anti-viral and antimicrobial responses, and multiple stress responses.

In non-stimulated conditions, NF-KB is retained in the cytoplasm with I-KB (Inhibitor KB). However, upon stimulation, I-KB is phosphorylated and degraded, causing NF-KB to shuttle to the nucleus, thereby activating transcription of target genes. Target genes activated by NF-KB include IL-2, IL-6, GM-CSF, ICAM-1 and class I MHC.

Due to its central role and ability to respond to a range of stimuli, reporter constructs utilizing the NF-KB promoter element are used to screen the supernatants produced in Example 31. Activators or inhibitors of NF-KB would be useful in treating, preventing, and/or diagnosing diseases. For example, inhibitors of NF-KB could be used to treat those diseases related to the acute or chronic activation of NF-KB, such as rheumatoid arthritis.

To construct a vector containing the NF-KB promoter element, a PCR based strategy is employed. The upstream primer contains four tandem copies of the NF-KB binding site (GGGGACTTTCCC) (SEQ ID NO:1888), 18 bp of sequence complementary to the 5' end of the SV40 early promoter sequence, and is flanked with an XhoI site:

5':GCGGCCTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGAC  
TTTCCATCCTGCCATCTCAATTAG:3' (SEQ ID NO:1889)

The downstream primer is complementary to the 3' end of the SV40 promoter and is flanked with a Hind III site:

5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1884)

PCR amplification is performed using the SV40 promoter template present in the pB-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is

digested with XhoI and Hind III and subcloned into BLSK2-. (Stratagene) Sequencing with the T7 and T3 primers confirms the insert contains the following sequence:

5':CTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGACTTTCC  
5 ATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCCTAACTCCGCCC  
ATCCCGCCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGA  
CTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTA  
TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAA  
GCTT:3' (SEQ ID NO:1890)

10 Next, replace the SV40 minimal promoter element present in the pSEAP2-promoter plasmid (Clontech) with this NF-KB/SV40 fragment using XhoI and HindIII. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

15 In order to generate stable mammalian cell lines, the NF-KB/SV40/SEAP cassette is removed from the above NF-KB/SEAP vector using restriction enzymes Sall and NotI, and inserted into a vector containing neomycin resistance. Particularly, the NF-KB/SV40/SEAP cassette was inserted into pGFP-1 (Clontech), replacing the GFP gene, after restricting pGFP-1 with Sall and NotI.

20 Once NF-KB/SV40/SEAP/Neo vector is created, stable Jurkat T-cells are created and maintained according to the protocol described in Example 33. Similarly, the method for assaying supernatants with these stable Jurkat T-cells is also described in Example 33. As a positive control, exogenous TNF alpha (0.1, 1, 10 ng) is added to wells H9, H10, and H11, with a 5-10 fold activation typically observed.

### 25 *Example 37: Assay for SEAP Activity*

As a reporter molecule for the assays described in Examples 33-36, SEAP activity is assayed using the Tropix Phospho-light Kit (Cat. BP-400) according to the following general procedure. The Tropix Phospho-light Kit supplies the Dilution,  
30 Assay, and Reaction Buffers used below.

Prime a dispenser with the 2.5x Dilution Buffer and dispense 15 ul of 2.5x dilution buffer into Optiplates containing 35 ul of a supernatant. Seal the plates with a plastic sealer and incubate at 65 degree C for 30 min. Separate the Optiplates to avoid uneven heating.

- 5 Cool the samples to room temperature for 15 minutes. Empty the dispenser and prime with the Assay Buffer. Add 50 ml Assay Buffer and incubate at room temperature 5 min. Empty the dispenser and prime with the Reaction Buffer (see the table below). Add 50 ul Reaction Buffer and incubate at room temperature for 20 minutes. Since the intensity of the chemiluminescent signal is time dependent, and it takes about 10 minutes to read 5 plates on luminometer, one should treat 5 plates at each time and start the second set 10 minutes later.

Read the relative light unit in the luminometer. Set H12 as blank, and print the results. An increase in chemiluminescence indicates reporter activity.

15 Reaction Buffer Formulation:

# of plates	Rxn buffer diluent (ml)	CSPD (ml)
10	60	3
11	65	3.25
12	70	3.5
13	75	3.75
14	80	4
15	85	4.25
16	90	4.5
17	95	4.75
18	100	5
19	105	5.25
20	110	5.5
21	115	5.75
22	120	6

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23	125	6.25
24	130	6.5
25	135	6.75
26	140	7
27	145	7.25
28	150	7.5
29	155	7.75
30	160	8
31	165	8.25
32	170	8.5
33	175	8.75
34	180	9
35	185	9.25
36	190	9.5
37	195	9.75
38	200	10
39	205	10.25
40	210	10.5
41	215	10.75
42	220	11
43	225	11.25
44	230	11.5
45	235	11.75
46	240	12
47	245	12.25
48	250	12.5
49	255	12.75
50	260	13

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*Example 38: High-Throughput Screening Assay Identifying Changes in Small*

*Molecule Concentration and Membrane Permeability*

Binding of a ligand to a receptor is known to alter intracellular levels of small molecules, such as calcium, potassium, sodium, and pH, as well as alter membrane potential. These alterations can be measured in an assay to identify supernatants which bind to receptors of a particular cell. Although the following protocol describes an assay for calcium, this protocol can easily be modified to detect changes in potassium, sodium, pH, membrane potential, or any other small molecule which is detectable by a fluorescent probe.

The following assay uses Fluorometric Imaging Plate Reader ("FLIPR") to measure changes in fluorescent molecules (Molecular Probes) that bind small molecules. Clearly, any fluorescent molecule detecting a small molecule can be used instead of the calcium fluorescent molecule, fluo-4 (Molecular Probes, Inc.; catalog no. F-14202), used here.

For adherent cells, seed the cells at 10,000 -20,000 cells/well in a Co-star black 96-well plate with clear bottom. The plate is incubated in a CO<sub>2</sub> incubator for 20 hours. The adherent cells are washed two times in Biotek washer with 200 ul of HBSS (Hank's Balanced Salt Solution) leaving 100 ul of buffer after the final wash.

A stock solution of 1 mg/ml fluo-4 is made in 10% pluronic acid DMSO. To load the cells with fluo-4, 50 ul of 12 ug/ml fluo-4 is added to each well. The plate is incubated at 37 degrees C in a CO<sub>2</sub> incubator for 60 min. The plate is washed four times in the Biotek washer with HBSS leaving 100 ul of buffer.

For non-adherent cells, the cells are spun down from culture media. Cells are re-suspended to  $2-5 \times 10^6$  cells/ml with HBSS in a 50-ml conical tube. 4 ul of 1 mg/ml fluo-4 solution in 10% pluronic acid DMSO is added to each ml of cell suspension. The tube is then placed in a 37 degrees C water bath for 30-60 min. The cells are washed twice with HBSS, resuspended to  $1 \times 10^6$  cells/ml, and dispensed into a microplate, 100 ul/well. The plate is centrifuged at 1000 rpm for 5 min. The plate is then washed once in Denley Cell Wash with 200 ul, followed by an aspiration step to 100 ul final volume.



For a non-cell based assay, each well contains a fluorescent molecule, such as fluo-4. The supernatant is added to the well, and a change in fluorescence is detected.

To measure the fluorescence of intracellular calcium, the FLIPR is set for the following parameters: (1) System gain is 300-800 mW; (2) Exposure time is 0.4 second; (3) Camera F/stop is F/2; (4) Excitation is 488 nm; (5) Emission is 530 nm; and (6) Sample addition is 50 ul. Increased emission at 530 nm indicates an extracellular signaling event caused by the a molecule, either polypeptide of the present invention or a molecule induced by polypeptide of the present invention, which has resulted in an increase in the intracellular  $\text{Ca}^{++}$  concentration.

*Example 40: High-Throughput Screening Assay Identifying Tyrosine Kinase Activity*

The Protein Tyrosine Kinases (PTK) represent a diverse group of transmembrane and cytoplasmic kinases. Within the Receptor Protein Tyrosine Kinase (RPTK) group are receptors for a range of mitogenic and metabolic growth factors including the PDGF, FGF, EGF, NGF, HGF and Insulin receptor subfamilies. In addition there are a large family of RPTKs for which the corresponding ligand is unknown. Ligands for RPTKs include mainly secreted small proteins, but also membrane-bound and extracellular matrix proteins.

Activation of RPTK by ligands involves ligand-mediated receptor dimerization, resulting in transphosphorylation of the receptor subunits and activation of the cytoplasmic tyrosine kinases. The cytoplasmic tyrosine kinases include receptor associated tyrosine kinases of the src-family (e.g., src, yes, lck, lyn, fyn) and non-receptor linked and cytosolic protein tyrosine kinases, such as the Jak family, members of which mediate signal transduction triggered by the cytokine superfamily of receptors (e.g., the Interleukins, Interferons, GM-CSF, and Leptin).

Because of the wide range of known factors capable of stimulating tyrosine kinase activity, identifying whether polypeptide of the present invention or a molecule induced by polypeptide of the present invention is capable of activating tyrosine

kinase signal transduction pathways is of interest. Therefore, the following protocol is designed to identify such molecules capable of activating the tyrosine kinase signal transduction pathways.

Seed target cells (e.g., primary keratinocytes) at a density of approximately  
5 25,000 cells per well in a 96 well Loprodyne Silent Screen Plates purchased from  
Nalge Nunc (Naperville, IL). The plates are sterilized with two 30 minute rinses with  
100% ethanol, rinsed with water and dried overnight. Some plates are coated for 2 hr  
with 100 ml of cell culture grade type I collagen (50 mg/ml), gelatin (2%) or  
polylysine (50 mg/ml), all of which can be purchased from Sigma Chemicals (St.  
10 Louis, MO) or 10% Matrigel purchased from Becton Dickinson (Bedford, MA), or  
calf serum, rinsed with PBS and stored at 4 degree C. Cell growth on these plates is  
assayed by seeding 5,000 cells/well in growth medium and indirect quantitation of  
cell number through use of alamarBlue as described by the manufacturer Alamar  
Biosciences, Inc. (Sacramento, CA) after 48 hr. Falcon plate covers #3071 from  
15 Becton Dickinson (Bedford, MA) are used to cover the Loprodyne Silent Screen  
Plates. Falcon Microtest III cell culture plates can also be used in some proliferation  
experiments.

To prepare extracts, A431 cells are seeded onto the nylon membranes of  
Loprodyne plates (20,000/200ml/well) and cultured overnight in complete medium.  
20 Cells are quiesced by incubation in serum-free basal medium for 24 hr. After 5-20  
minutes treatment with EGF (60ng/ml) or 50 ul of the supernatant produced in  
Example 31, the medium was removed and 100 ml of extraction buffer ((20 mM  
HEPES pH 7.5, 0.15 M NaCl, 1% Triton X-100, 0.1% SDS, 2 mM Na<sub>3</sub>VO<sub>4</sub>, 2 mM  
Na<sub>4</sub>P<sub>2</sub>O<sub>7</sub> and a cocktail of protease inhibitors (# 1836170) obtained from  
25 Boehringer Mannheim (Indianapolis, IN) is added to each well and the plate is  
shaken on a rotating shaker for 5 minutes at 4°C. The plate is then placed in a  
vacuum transfer manifold and the extract filtered through the 0.45 mm membrane  
bottoms of each well using house vacuum. Extracts are collected in a 96-well  
catch/assay plate in the bottom of the vacuum manifold and immediately placed on  
30 ice. To obtain extracts clarified by centrifugation, the content of each well, after

detergent solubilization for 5 minutes. is removed and centrifuged for 15 minutes at 4 degree C at 16,000 x g.

Test the filtered extracts for levels of tyrosine kinase activity. Although many methods of detecting tyrosine kinase activity are known, one method is described

5 here.

Generally, the tyrosine kinase activity of a supernatant is evaluated by determining its ability to phosphorylate a tyrosine residue on a specific substrate (a biotinylated peptide). Biotinylated peptides that can be used for this purpose include PSK1 (corresponding to amino acids 6-20 of the cell division kinase cdc2-p34) and  
10 PSK2 (corresponding to amino acids 1-17 of gastrin). Both peptides are substrates for a range of tyrosine kinases and are available from Boehringer Mannheim.

The tyrosine kinase reaction is set up by adding the following components in order. First, add 10ul of 5uM Biotinylated Peptide, then 10ul ATP/Mg<sub>2</sub><sup>+</sup> (5mM ATP/50mM MgCl<sub>2</sub>), then 10ul of 5x Assay Buffer (40mM imidazole hydrochloride,  
15 pH7.3, 40 mM beta-glycerophosphate, 1mM EGTA, 100mM MgCl<sub>2</sub>, 5 mM MnCl<sub>2</sub>, 0.5 mg/ml BSA), then 5ul of Sodium Vanadate(1mM), and then 5ul of water. Mix the components gently and preincubate the reaction mix at 30 degree C for 2 min. Initial the reaction by adding 10ul of the control enzyme or the filtered supernatant.

The tyrosine kinase assay reaction is then terminated by adding 10 ul of  
20 120mM EDTA and place the reactions on ice.

Tyrosine kinase activity is determined by transferring 50 ul aliquot of reaction mixture to a microtiter plate (MTP) module and incubating at 37 degree C for 20 min. This allows the streptavidin coated 96 well plate to associate with the biotinylated peptide. Wash the MTP module with 300ul/well of PBS four times. Next add 75 ul  
25 of anti-phosphotyrosine antibody conjugated to horse radish peroxidase(anti-P-Tyr-POD(0.5u/ml)) to each well and incubate at 37 degree C for one hour. Wash the well as above.

Next add 100ul of peroxidase substrate solution (Boehringer Mannheim) and incubate at room temperature for at least 5 mins (up to 30 min). Measure the  
30 absorbance of the sample at 405 nm by using ELISA reader. The level of bound

peroxidase activity is quantitated using an ELISA reader and reflects the level of tyrosine kinase activity.

*Example 41: High-Throughput Screening Assay Identifying Phosphorylation Activity*

5

As a potential alternative and/or compliment to the assay of protein tyrosine kinase activity described in Example 40, an assay which detects activation (phosphorylation) of major intracellular signal transduction intermediates can also be used. For example, as described below one particular assay can detect tyrosine phosphorylation of the Erk-1 and Erk-2 kinases. However, phosphorylation of other molecules, such as Raf, JNK, p38 MAP, Map kinase kinase (MEK), MEK kinase, Src, Muscle specific kinase (MuSK), IRAK, Tec, and Janus, as well as any other phosphoserine, phosphotyrosine, or phosphothreonine molecule, can be detected by substituting these molecules for Erk-1 or Erk-2 in the following assay.

15

Specifically, assay plates are made by coating the wells of a 96-well ELISA plate with 0.1ml of protein G (1ug/ml) for 2 hr at room temp, (RT). The plates are then rinsed with PBS and blocked with 3% BSA/PBS for 1 hr at RT. The protein G plates are then treated with 2 commercial monoclonal antibodies (100ng/well) against Erk-1 and Erk-2 (1 hr at RT) (Santa Cruz Biotechnology). (To detect other molecules, this step can easily be modified by substituting a monoclonal antibody detecting any of the above described molecules.) After 3-5 rinses with PBS, the plates are stored at 4 degree C until use.

20

A431 cells are seeded at 20,000/well in a 96-well Loprodyne filterplate and cultured overnight in growth medium. The cells are then starved for 48 hr in basal medium (DMEM) and then treated with EGF (6ng/well) or 50 ul of the supernatants obtained in Example 31 for 5-20 minutes. The cells are then solubilized and extracts filtered directly into the assay plate.

25

After incubation with the extract for 1 hr at RT, the wells are again rinsed. As a positive control, a commercial preparation of MAP kinase (10ng/well) is used in place of A431 extract. Plates are then treated with a commercial polyclonal (rabbit)

30

antibody (1 µg/ml) which specifically recognizes the phosphorylated epitope of the Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

*Example 42: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation*

This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on a hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to *in vitro* stimulation with SCF+IL-3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

Briefly, CD34+ cells are isolated using methods known in the art. The cells

are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-glutamine (500ml) Quality Biological, Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to  $2.5 \times 10^5$  cells/ml. During this time, 100  $\mu$ l of sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10  $\mu$ l of prepared cytokines, 50  $\mu$ l of the supernatants prepared in Example 31 (supernatants at 1:2 dilution = 50  $\mu$ l) and 20  $\mu$ l of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100  $\mu$ l. The plates are then placed in a 37°C/5% CO<sub>2</sub> incubator for five days.

Eighteen hours before the assay is harvested, 0.5  $\mu$ Ci/well of [<sup>3</sup>H] Thymidine is added in a 10  $\mu$ l volume to each well to determine the proliferation rate. The experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60  $\mu$ l Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film. A bar code 15 sticker is affixed to the first plate for counting. The sealed plates is then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide. In contrast, potential agonists tested in this assay would be expected to enhance cell

proliferation and/or to decrease the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.

The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein.

*Example 43: Assay for Extracellular Matrix Enhanced Cell Response (EMECCR)*

The objective of the Extracellular Matrix Enhanced Cell Response (EMECCR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in *in vitro* suspension culture. The ability of stem cells to undergo self-renewal *in vitro* is dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the  $\alpha_5\beta_1$  and  $\alpha_4\beta_1$  integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and responsible for stimulating stem cell self-renewal has not yet been identified. Discovery of such factors should be of great interest in gene therapy and bone marrow transplant applications

Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of  $0.2 \mu\text{g}/\text{cm}^2$ . Mouse bone marrow cells are plated (1,000 cells/well) in 0.2 ml of serum-free medium. Cells cultured in the presence of IL-3 (5 ng/ml) + SCF (50 ng/ml) would serve as the positive control.

conditions under which little self-renewal but pronounced differentiation of the stem cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 31), are tested with appropriate negative controls in the presence and absence of SCF(5.0 ng/ml), where test factor supernates represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment ( 5% CO<sub>2</sub>, 7% O<sub>2</sub>, and 88% N<sub>2</sub> ) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACSscan.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.



Moreover, polynucleotides and polypeptides corresponding to the gene of interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

*Example 44: Human Dermal Fibroblast and Aortic Smooth Muscle Cell Proliferation*

The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two co-assays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNF $\alpha$  stimulation, in order to check for costimulatory or inhibitory activity.

Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100  $\mu$ l culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5  $\mu$ g/ml hEGF, 5mg/ml insulin, 1 $\mu$ g/ml hFGF, 50mg/ml gentamycin, 50  $\mu$ g/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours, culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for AoSMC contains SM basal media, 50mg/ml gentamycin, 50 $\mu$ g/ml Amphotericin B,

0.4% FBS. Incubate at 37°C until day 2.

On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest media. For inhibition experiments, TNF $\alpha$  is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37°C/5% CO<sub>2</sub> until day 5.

Transfer 60 $\mu$ l from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4°C until Day 6 (for IL6 ELISA). To the remaining 100  $\mu$ l in the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10 $\mu$ l). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100  $\mu$ l/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200  $\mu$ l/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash buffer (PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50  $\mu$ l/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker. Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin 1:1000 in Assay buffer, and add 100  $\mu$ l/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels. Add 100  $\mu$ l/well of Enhancement Solution and shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay are tabulated and averaged.

A positive result in this assay suggests AoSMC cell proliferation and that the

polypeptide of the present invention may be involved in dermal fibroblast proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides, agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result.

5 For example, inflammation and immune responses, wound healing, and angiogenesis, as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculogenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of,  
10 for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular (e.g., anti-angiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign  
15 tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye;  
20 rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia;  
25 hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

One skilled in the art could easily modify the exemplified studies to test the  
30 activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

*Example 45: Cellular Adhesion Molecule (CAM) Expression on Endothelial Cells*

5

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100  $\mu$ l of 199 Medium (10% fetal bovine serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10  $\mu$ l volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100  $\mu$ l of 0.1% paraformaldehyde-PBS(with Ca++ and Mg++) is added to each well. Plates are held at 4°C for 30 min. Fixative is removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10  $\mu$ l of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10  $\mu$ g/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three times with PBS(+Ca,Mg) + 0.5% BSA. 20  $\mu$ l of diluted ExtrAvidin-Alkaline

Phosphotase (1:5,000 dilution, referred to herein as the working dilution) are added to each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphotase in glycine buffer: 1:5,000 ( $10^0$ ) >  $10^{-0.5}$  >  $10^{-1}$  >  $10^{-1.5}$ . 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent is then added to each of the standard wells. The plate is incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of AP-conjugate in each standard well [ 5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

*Example 46: Alamar Blue Endothelial Cells Proliferation Assay*

This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the

overnight incubation of the cells. the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM ) in triplicate wells with additional bFGF to a concentration of 10 ng/ ml. Once the cells have been treated with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and protein dilutions.

*Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction*

This assay can be used to detect and evaluate inhibition of a Mixed Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides

since the peripheral blood mononuclear fraction used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM<sup>®</sup>, density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to  $2 \times 10^6$  cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is adjusted to  $2 \times 10^5$  cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50  $\mu$ l) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhuIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1  $\mu$ g/ml; anti-CD4 mAb (R&D Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10  $\mu$ g/ml. Cells are cultured for 7-8 days at 37°C in 5% CO<sub>2</sub>, and 1  $\mu$ C of [<sup>3</sup>H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.



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Name of depositary institution American Type Culture Collection	
Address of depositary institution <i>(including postal code and country)</i> 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209059
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Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner. the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209059**

## **DENMARK**

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## **SWEDEN**

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## **NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209060
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner. the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

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**AUSTRALIA**

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**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209060**

**DENMARK**

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**SWEDEN**

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**NETHERLANDS**

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Date of deposit 20 May 1997	Accession Number 209061
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D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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**NORWAY**

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**UNITED KINGDOM**

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Date of deposit 20 May 1997	Accession Number 209062
C. ADDITIONAL INDICATIONS (leave blank if not applicable)	
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D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on:
Authorized officer Sonya A. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

**ATCC Deposit No.: 209062**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209062**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

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## **NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209063
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

**ATCC Dep sit No.: 209063**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

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## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209063**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209064</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No.: 209064**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209064****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209065
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g. "Accession Number of Deposit")	

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Authorized officer Sonya B. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

Form PCT/RO/134 (July 1992)

**ATCC Deposit No.: 209065**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

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## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

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**ATCC Deposit No.: 209065**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209066</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer <b>Sonya D. Barnes</b> <b>PCT/Internat'l Appl Processing Div</b> <b>(703) 305-3865</b></p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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**ATCC Deposit No.: 209066**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

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## **UNITED KINGDOM**

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**ATCC Deposit No.: 209066**

**DENMARK**

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**NETHERLANDS**

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Applicant's or agent's file  
reference number

PA101PCT

International application No.

UNASSIGNED

## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209067
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States) Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable) The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g. "Accession Number of Deposit")	
<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on: Authorized officer

**ATCC Deposit No.: 209067**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209067****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209068
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on.
Authorized officer Sonya D. Barnes P&T/Int. nat'l Appl Processing Div (703) 306-3665	Authorized officer

Form PCT/RO/134 (July 1992)

**ATCC Deposit No.: 209068**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209068**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

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## **NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209069
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

**ATCC Deposit No.: 209069**

#### **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

#### **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

#### **AUSTRALIA**

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#### **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

#### **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.



**ATCC Deposit No.: 209069**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 12 January 1998	Accession Number 209579
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on:
Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3865	Authorized officer

Form PCT/RO/134 (July 1992)

**ATCC Deposit No.: 209579**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209579**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file  
reference number

PA101PCT

International application No.

UNASSIGNED

## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 12 January 1998	Accession Number 209578
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665

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Authorized officer

**ATCC Deposit No.: 209578**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

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## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 209578****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit  16 July 1998	Accession Number  203067
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized <u>Sonya D. Barnes</u> <u>PCT/Internat'l Appl Processing Div</u> <u>(703) 305-3665</u></p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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Form PCT/RO/134 (July 1992)



**ATCC Deposit No.: 203067**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

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## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

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**ATCC Deposit No.: 203067**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file  
reference number

PA101PCT

International application No.

UNASSIGNED

## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 16 July 1998	Accession Number 203068
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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<input checked="" type="checkbox"/> This sheet was received with the international application
Authorized officer Sonya D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3965

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Authorized officer

**ATCC Deposit No.: 203068**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 203068**

## **DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

## **SWEDEN**

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## **NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 01 February 1999	Accession Number 203609
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Steven D. Barnes PCT/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

**ATCC Deposit No.: 203609**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 203609**

**DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 01 February 1999	Accession Number 203610
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g. "Accession Number of Deposit")	

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**ATCC Deposit No.: 203610****CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

**NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

**AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

**FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

**UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 203610****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by an applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 17 November 1998	Accession Number 203485
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g. "Accession Number of Deposit")	

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**ATCC Deposit No.: 203485**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

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## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: 203485****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

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**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

<b>A.</b> The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
<b>B. IDENTIFICATION OF DEPOSIT</b> Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 18 June 1999	Accession Number PTA-252
<b>C. ADDITIONAL INDICATIONS</b> (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
<b>D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE</b> (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
<b>E. SEPARATE FURNISHING OF INDICATIONS</b> (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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**ATCC Deposit No.: PTA-252**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

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## **FINLAND**

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## **UNITED KINGDOM**

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**ATCC Deposit No.: PTA-252**

**DENMARK**

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**SWEDEN**

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**NETHERLANDS**

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Applicant's or agent's file reference number	PA101PCT	International application No.	UNASSIGNED
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## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>100</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT <span style="float: right;">Further deposits are identified on an additional sheet <input type="checkbox"/></span>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 18 June 1999	Accession Number PTA-253
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on:
Authorized officer Sanya D. Barnes P&T/Internat'l Appl Processing Div (703) 305-3665	Authorized officer

**ATCC Dep sit No.: PTA-253**

## **CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

## **NORWAY**

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

## **AUSTRALIA**

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

## **FINLAND**

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

## **UNITED KINGDOM**

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

**ATCC Deposit No.: PTA-253****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

**SWEDEN**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

**NETHERLANDS**

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file  
reference number

PA101PCT

International application No.

UNASSIGNED

## INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

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Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>22 December 1999</u>	Accession Number <u>PTA-1081</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) <span style="float: right;">This information is continued on an additional sheet <input type="checkbox"/></span>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application
Authorized officer <u>Sonya D. Barnes</u> <u>PCT/Int'l Appl Processing Div</u> <u>(703) 305-3665</u>

<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on:
Authorized officer

**ATCC Deposit No.: PTA-1081**

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**ATCC Deposit No.: PTA-1081****DENMARK**

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**SWEDEN**

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*What Is Claimed Is:*

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;

(f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;

(g) a polynucleotide which is a variant of SEQ ID NO:X;

(h) a polynucleotide which is an allelic variant of SEQ ID NO:X;

(i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;

(j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide



sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

5

3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

10

4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

15

5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

20

6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

25

7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.

30

9. A recombinant host cell produced by the method of claim 8.

10. The recombinant host cell of claim 9 comprising vector sequences.

11. An isolated polypeptide comprising an amino acid sequence at least  
5 95% identical to a sequence selected from the group consisting of:

(a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by  
the cDNA included in the related cDNA clone;

(b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by  
the cDNA included in the related cDNA clone, having biological activity;

10 (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the  
cDNA included in the related cDNA clone;

(d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the  
cDNA included in the related cDNA clone;

15 (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the  
cDNA included in the related cDNA clone;

(f) a variant of SEQ ID NO:Y;

(g) an allelic variant of SEQ ID NO:Y; or

(h) a species homologue of the SEQ ID NO:Y.

20 12. The isolated polypeptide of claim 11, wherein the full length protein  
comprises sequential amino acid deletions from either the C-terminus or the N-  
terminus.

25 13. An isolated antibody that binds specifically to the isolated polypeptide  
of claim 11.

14. A recombinant host cell that expresses the isolated polypeptide of  
claim 11.

30 15. A method of making an isolated polypeptide comprising:

(a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

5           16.     The polypeptide produced by claim 15.

17.     A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

10

18.     A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

(a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

15           (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

19.     A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

20           (a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and

(b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

25           20.     A method for identifying a binding partner to the polypeptide of claim 11 comprising:

(a) contacting the polypeptide of claim 11 with a binding partner; and

(b) determining whether the binding partner effects an activity of the polypeptide.

30

21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.

22. A method of identifying an activity in a biological assay, wherein the method comprises:

- 5 (a) expressing SEQ ID NO:X in a cell;  
(b) isolating the supernatant;  
(c) detecting an activity in a biological assay; and  
(d) identifying the protein in the supernatant having the activity.

10 23. The product produced by the method of claim 20.

## SEQUENCE LISTING

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Steve Ruben

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aagcattata actgtaacgt tctttgagtt tgtgattgat ccacattttt cccctgcat 540  
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taaatacatgt tttcaagaac gtcaaatttc tggacttttt tctttcaatt ttttaattttt 900  
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gaaaagccaa aaaaaaaaaa aaaaac 986

<210> 5

<211> 370

<212> DNA

<213> Homo sapiens

<400> 5

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atctaattggc tctgccccaa cacgaatctc agtacaatgc ttgtcccctg ccaccacagg 180  
ctcagcatca gtagatctct gttgtaccag agatatttct ctgttacctg gagagccacc 240  
tattgtctgt cccacagggtg tttttggccc cttgccgact ggcagtgtcg gtttgctatt 300  
tgatctctca agcctaaatt taaaagggtg tcaagtacat actggtgtaa ttgattctga 360  
tattcagggtg 370

<210> 6

<211> 511

<212> DNA

<213> Homo sapiens



<220>

<221> misc feature

<222> (511)

<223> n equals a,t,g, or c

<400> 6

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tcatgccaca aaatttggtta gctccacctt taaaatatat ttagattaag acctctcttc 120
atcaccaccc tgctgtcacc ctaacaaagc aaccatcatc tctcaaaata aatcctaagt 180
tccttagggc ttcctaggcc tactctttat gccccaggct acctatccag gtgaatctct 240
tccagttctc ctccatgaat ttctgtctca cagaatgcat gtaccattgc actttgtaac 300
gtcagtctct cccaccagac aatgatcaga ttcttagttg tctctttata ccatttcaca 360
gtgcactgac tgagcacaaa ttttaaggctt caataaatgg taagtgaatg aataatgaat 420
gaatgaatgc tacaatattg attataatgg ataaagagat atattgacct gcttgacaga 480
aagccgaggg gggcaaagta aaatgggcct n 511
```

<210> 7

<211> 718

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (565)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (630)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (634)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (676)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (702)

<223> n equals a,t,g, or c

<400> 7

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gaggggacag gctgacstgg aggrccagag gcccccgag gagcactgaa ggagaagatc 120
tgccagtggg tctccattgc ccagctcctg cccacactcc cgcctgttgc cctgaccaga 180
gtcatcatgc ctcttgagca gaggagtcag cactgcaagc ctgaagaagg ccttgaggcc 240
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cgaggagagg ccctgggcct ggtgggtgcg cagctcctgc tactgaggag caggaggctg 300
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cagatcctcc ccagagtcct cagggagcct ccagcctccc camtaccatg aactaccctc 420
tctggagcca atcctatgag gactccagca accaagaaga ggaggggcca agcaccttcc 480
ctgacctgga gtctgagttc caagcagcac tcagtaggaa ggtggccaag ttggttcatt 540
ttctgctcct caagtatcga gccanggagc cggtcacaaa ggcagaaatg ctggggagtg 600
tcgtcggaaa attggcaagt acttcttttn ctgngatctt caagcaaaag ctttccgatt 660
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<210> 8

<211> 445

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (353)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (411)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (435)

<223> n equals a,t,g, or c

<400> 8

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tttgatacat aatttgcccg agtttatcca taaattctat gtcttccttt ttatctcctt 180
tcataattct acaccctgct gtggcctggc caacataatg atttaggtga tctagagttt 240
agtcaaactg gataattgat tgtaattgct tagaaattta ccacaaaaat cgctctgttt 300
tctttgggat tgctcctaac ttttcaacttc ttttgagggc tgcacacgct gtntcagca 360
gctactggtc ccagccactg ggggaagaaa gaaatgcatg gtaggacagc ncttaccat 420
tccttttaat tgcnaattc gaagc 445

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<210> 9

<211> 758

<212> DNA

<213> Homo sapiens

<400> 9

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aaactgcaga tcggccagag tggtagaaaa gttgctgcag ggtttttctg gctttgcctg 180
cccagccgct ccattgcctgg ctagaggaga aggaggagcc acatgtggtg cactggaggc 240
tgagcctgct agatggcatg gctctgcggc tcaccttgct gcagttggtg gtggtgacag 300
agactgcagc ttgactgtag tgaatttgga aattatctgt ctggaagctc tgagtttatt 360

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taaactgaac cacacatgga caggccattc ttccgaggac ccttagattg atcccagggg 480  
gagccctagc tgctattccc cattcaacgc ccctttttcag caggaagtag ccagaaggag 540  
tcgccgccc aaatccccta acagcagtta gtgtggcatc tccacaggaa gtaatgttgt 600  
aggagttact aagaaattat tttaggcaga tagagaggaa aaggggtcct tgggaagttt 660  
tcatttttta aagcatctct ggaaaagttt cttgtaaagc cccggctctt agagccaggc 720  
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<210> 10

<211> 3064

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1375)

<223> n equals a,t,g, or c

<400> 10

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atcctggcct tcctacgacg ggtcaaggcc tgcaaccccc tagacgcagg gcccatggtg 240  
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gagcggatga agcacgagaa gacggtggac atctatggcc acgtgacctg catgcgatca 360  
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gaggctgcca cgtgcggcca cacagaggtg cctgcccgca acctgtatgc ccacatccag 480  
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ctggccagct ccaaggccca cactgccgcg ttcatcagcg ccaacctgcc ctgcaacaag 600  
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cagaaggcct acatagctac acaggggcct ctggcagaga gcaccgagga cttctggcgc 780  
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gaagataggg aacactcatc cctggtcgtc tatcccagtg tgtgtttaac attcacagcc 2100
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<210> 11

<211> 1496

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (643)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1478)

<223> n equals a,t,g, or c

<400> 11

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ttacttttca aagctttgtg aaacaaactt gaagttatag ggaggtaagc catctccaac 780
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<210> 12

<211> 1427

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1395)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1402)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1407)

<223> n equals a,t,g, or c

<400> 12

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gagacactgc gaaagcaaac cgaggagaaa gagaaaaaag agaagccaaa atctgataag 180  
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<210> 13  
 <211> 3548  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (346)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (389)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1103)  
 <223> n equals a,t,g, or c

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 aggcgctgga ggtccagcgg cagaaggagt taatgcgcca gaggcagcag cagcaagagg 180  
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<210> 14

<211> 466

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (95)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (433)

<223> n equals a,t,g, or c

<400> 14

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<211> 864

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<220>

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<222> (847)

<223> n equals a,t,g, or c

<400> 15

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<210> 16

<211> 2805

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature



<222> (11)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (48)

<223> n equals a,t,g, or c

<400> 16

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<210> 17

<211> 710

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (21)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (608)

<223> n equals a,t,g, or c

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ggggattttg attgttgcg ctctgctctg aagaaagtgc tgtctggctc caactccagt 180  
tctttcccct gagcagcgcc tggaacctaa cccttcccac tctgtcacct tctcgatccc 240  
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<210> 18

<211> 992

<212> DNA

<213> Homo sapiens

<400> 18

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ggcaaaaaaa aaaaaawawa aaaaaaaaaa aa 992
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&lt;210&gt; 19

&lt;211&gt; 1795

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 19

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<210> 20

<211> 709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (708)

<223> n equals a,t,g, or c

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<210> 21

<211> 649

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (534)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (596)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (600)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (624)

<223> n equals a,t,g, or c

<400> 21

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caaaattttg gtttaaaaact ccanaatata catgttaaact cctctgcta 649
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<210> 22.

<211> 1607

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (820)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (821)

<223> n equals a,t,g, or c

<400> 22

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<220>

<221> misc feature

<222> (249)

<223> n equals a,t,g, or c

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<211> 2680

<212> DNA

<213> Homo sapiens

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<211> 1859

<212> DNA

<213> Homo sapiens

<400> 26

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<211> 634

<212> DNA

<213> Homo sapiens

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<220>  
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<212> DNA  
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<211> 2539

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (105)

<223> n equals a,t,g, or c

<220>

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<222> (936)

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<222> (951)

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gaggtttctc gcccctaatw cstcacggca cagtactctt gggcagtaac tggacacctt 2280
ttatttgaag aaacaaactg aagaaaaaat gcttccttaa gtgctgacag cctttttaac 2340
caatacattt aaaattgtac agaacaaaaa aataaaatca aagactgatc ttgtacagat 2400
attagtgtta ccagcattca tgtggaaatc aagagcaaag acaaaaataat gttaaacaat 2460
tctgtaccat aacattttct gtaatgatac tgaaacttaa tgaataaaaa aattccttga 2520
tcattattta aaaaaaaaaa

```

2539

&lt;210&gt; 30

&lt;211&gt; 494

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 30

```

gtcttctaga ggtagagtcg agtgtatctg agagtgttct tctcttagaa taaatgacat 60
taacatatga aaaaacagct acttgtgcct gactatgggc attttcatgt acasgagttc 120
ttgaagctga gtttattgag aatgggtttt ttacctgtct atagctatct ttttgtgttt 180
agttcttttt gacttctttg gcctctaatt ttttgacagt ggcacttaga tgacagtcag 240
caattgcaac agtgaatgaa atcacacagc ttgagttcaa ggtggaaaga gaaaaaaatc 300
tagagaggat gttatctgac ctggcatgag aggtgatcat cctgtctctg agcagtgggt 360
tcttgctctc gaccttaggg tgtaatgtgg ccctgctcct tgtatggtga ataacttgtg 420
actgctgtgt ttaccacatg gsttgrcagt tkacaaagca ctttgkgkat atattgcaca 480
ctctgcatcc ttac

```

494

&lt;210&gt; 31

&lt;211&gt; 1263

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 31

```
taaatgatgt tttgggtaag agtggaccat gagaattagc tgacagcatc ccctttctct 60
ctccctgcct tgggtgggacc ctccctgtgtg accttggcaa gtc-cgaact tttgtccgta 120
tttaagatgg agctgtttta cctacttcat aagacagttg cgaggtgcca ttgattcttg 180
actgcaaaat accttgaaac ccttatataa agactgaagk caacggagcc tagtgaaaga 240
cttactttgt ggcttgtggt tgaaagtcac atcaaaagac aaatgtggcc acgttcagga 300
attggagact tactggcatg gctctacagc tgctcagtta ttaatcatgc agactaacct 360
gtcaacactg ggagatgcaa catagcaaaa ggacagagaa attagaattt tttgtgcaga 420
aagccctaaa ttcccacctg aatgtaactt acagctccct tacctactct cacacatgcc 480
ctcaaacatg ctagattggc ttatacatag gccaacacaa aatacaaacg tgacgtgttc 540
atgtagccta gtggctatat gcctattctc catgtaccct gcatggtagt gctgcaaact 600
ttaaagtaca tttctttcac agcagtattt tttttcataa gtggcatata aatctcattc 660
aatgaaatgs ggaaatcacg ttgagaagtt ggtctgtcat ctcccatga gcaaagactg 720
gcaggagata ataaaaataa atatgggcac acatgtatta atatacagca cgcatttaca 780
agtttttttt ccagataaaa ttgtgctata agaacagctc taccaagaca gtctgcacca 840
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gaagttcctc tcaagtaggc ccaagaaaca gttctagatt ttactaagtt ttattttgtc 960
aggtttttta aattttttca gtgagcgtgg tgactgcaga ggttagtgct gtgaaaagct 1020
gggctaaata ttctttctgt aaagtcaaac aggattccat cccctgtgaa ataacacaaa 1080
atttcactct ctaaaagcaa cagcatgtaa actagaatga aagaaggaaa ttatgtacgt 1140
atgcctaata ttctttgtga atgtctttca tttaactaaa atttatattag aaaccagatt 1200
gataaataaa aaattcaaag tagttttaat tatcctaaaa aaaaaaaaaa aaaaaaaagt 1260
ttt 1263
```

&lt;210&gt; 32

&lt;211&gt; 337

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (337)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 32

```
ggcacgaggg aaaaatgaaa acaaggcagc agcatcagac ctatcttttag attgtttttt 60
ttttctctct cttttacaag tgtcagttta attccagagc cctggcccag tattttctga 120
tgattttctc cccaagggaag agaaggaaat ccctgctggt tacacagctg cgatgtcaga 180
cttcctctga aacatgcact gttgctgcct attagcataa cttcagtcct tcattctctc 240
ctgactgatt agtgatctgc aggcagttta aaaaacatac tttggagggg ccgggcgtgg 300
tggctcacgc ctataatccc agcactttgg gaggctn 337
```

&lt;210&gt; 33

&lt;211&gt; 1742

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (9)

&lt;223&gt; n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1576)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1578)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1621)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1724)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1733)

<223> n equals a,t,g, or c

<400> 33

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gtgggggggna gggggganaag gccaaagactg gggwagaatt tttaaagattc aacactgggtg 60
tacatatgtc cgctgggtga gttgacctgt ggcctcgcac agtgattctg ggccctttat 120
gcttgctgtc tctcagaatt gttttcttac cttttaatgt aatgacgagt gtgcttcagt 180
ttgttttagca aaaccactct cttgaatcac gttaactttt gagattaaaa aaaaaaacgc 240
catagcacag ctgtctttat gcaagcaaga gcacatctac tccagcatga tctgtcatct 300
aaagacttga aaacaaaaaa cagttactta tagtcaatgg gtaagcagag tctgaattta 360
tactaatcaa gacaaacctt tgaaaggtta cactaagtac agaactttta aaccttgctt 420
tgtatgagtt gtactttttg aacataagct gcacttttat tttctaattgc agaggatgaa 480
taagttaa atacatgctttg aggatagaag cagatgttct gtttggcacc acgttataat 540
ctgcttattt tacaatatac acgtttccct aagaaatcat ggcagagatg tgagggcaga 600
atatacacia cagatgctga aggagaagga gggtagtggt ttgcaaaaaga aaaagaaaag 660
aaccaacaga attttaactc tattaacttt tccaaatttt cctatgcttt tagttaacat 720
cattattgta tcctaattgcc actaggggag agagcttttg actctgttgg gttttatttg 780
aatgtgtgca taacagtaat gagatctgga aacacctatt ttttggggaa aaagggttgt 840
tggtctcctt cctgtgttcc tacraaactc ccactctcag gtgcaagagt tatgtagaag 900
gaaaggggagc tgaaatagga acagaaaaat caaccctat aactagtga caccaaggga 960
aaataccaca atgatttcag aggagactct gcaaaatcgt cccttggtgga gaatgcaggc 1020
aacatggaat actacgaatg aaatcacatc actgtatctt ttacatcaat agcctcacca 1080
ctaatatatc ttgtatctag gtgtctataa tggctgaaac cactacatcc atctatgcca 1140
```

tttacctgaa aacttaactg tggccctttat gaggccagaa aagtgaactg agtttttcgta 1200  
gttaagacct caaatgaggg gagtcagcag tgatcatggg ggaaatgttt acatttttttt 1260  
tttcttcaga agtaacgctt tctgatgatt ttatctgata tttaaaacag ggagctatgg 1320  
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acggctgact ccaacttcca atacaacagc catcactagc acagtgtttt tttgtttaac 1500  
caacgtagtt gtwattagta gttctataaa gagaactgct tttaacatta ggggactggg 1560  
gagcagtcca tggggntnaa aaagggaagt gttttctcac grggaaaaca tgytcaggga 1620  
naawtaaagg aacactttct accyctgttt ccaggatttt tgaaacactt wtttttaaac 1680  
ccaattttta atttcygtgt tcccaaaaata ggttttttag gggncatctg ttncctcccc 1740  
ta 1742

<210> 34

<211> 1166

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (965)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1090)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1094)

<223> n equals a,t,g, or c

<400> 34

ccggaatgaa aacaaacggc ggccgctgcc gagtccgggc actctgctgg tcgcggcggg 60  
agtggcgtgg cgcaggggatg gcacaaaaga aatatcttca agcaaaattg acccagtttt 120  
taaggggaaga caggattcaa ctttggaac ctccatatac agatgaaaat aaaaaagttg 180  
gtttggcatt aaaggacctt gctaagcagt actctgacag actagaatgc tgtgaaaatg 240  
aagtagaaaa ggtaatagaa gaaatacgtt gcaaggcaat tgagcgtgga acaggaaatg 300  
acaattatag aacaacggga attgctacaa tcgaggtgtt ttaccacca agactaaaaa 360  
aagataggaa aaacttggtg gagaccgat tgcacatcac tggcagagaa ctgaggtcca 420  
aaatagctga aacctttgga cttcaagaaa attatatcaa aattgtcata aataagaagc 480  
aactacaact agggaaaacc cttgaagaac aaggcgtggc tcacaatgtg aaagcgtatg 540  
tgcttgaact aaaacaatct gaagaggacg cgaggaaaaa cttccagtta gaggaagagg 600  
agcaaaatga ggccaaactc aaagaaaaac aaattcagag gaccaagaga ggactagaaa 660  
tactggcaaa gagagcagca gagacagtgg tggatccaga aatgacaccg tacttagaca 720  
tagctaacca gacaggcaga tcaatcagaa ttcccccatc agaaagaaaa gcccttatgt 780  
tagctatggg atatcatgag aagggcagag ctttcctgaa aagaaaagaa tatggaatag 840  
ccttgccatg tctgttggac gctgacaaat atttctgtga gtgttgaga ragctgctgg 900  
acacagtgga taactacgcc gtcctccagc tggatatagt gtggtgttam ttccgcctgg 960  
aacanctgga atgccttgat gatgcagaaa aaaaattaaa cttggscag aaatgcttta 1020  
aaaattgtta cggagaaaat cmtcagagac tgggtccacat aaaagtatgt tcctgggaat 1080

tcattcttatn ggcncgttga gtccattttct agcattttgtg tttatttcctg ttaaagtatt 1140  
tgaactactg ccagaagggtg gattttt 1166

<210> 35

<211> 1049

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<400> 35

gatgggtgcc cccggcngca ggaattcggc cagcaggntg gtgctggggc ttcttctcct 60  
gaaggggctg caagagggaa ggcttagcca tgcgtcctt gatcagaagg gtgatcagca 120  
ccgcgaaagc cccagggggc attggaccct acagtcaagc tgtattagtc gacaggacca 180  
tttacatttc aggacagata ggcattggacc cttcaagtgg acagcttgtg tcaggagggg 240  
tagcagaaga agctaaacaa gctcttaaaa acatgggtga aattctgaaa gctgcaggct 300  
gtgacttcac taacgtggtg aaaacaactg ttcttctggc tgacataaat gacttcaata 360  
ctgtcaatga aatctacaaa cagtatttca agagtaattt tcctgctaga gctgcttacc 420  
aagttgctgc tttacccaaa ggcagccgaa ttgaaattga agcagtagct atccaaggac 480  
cactgacaac ggcattcacta taagtgggcc cagtgcgtg tagtctggaa ttgttaacat 540  
tttaattttt acaattgatg taacatctta attaaccttt taattttcac aattgatgac 600  
agtgtgagtt tgatgaaaaat atctgaagct attatggaaa taccatgtaa tagggagagt 660  
tgaacatgaa tattagagaa ggaatccagt tactttttta aattacacct gtgtgcacct 720  
gtattactga atataggaaa gagataccca ttacatagtt actcagtaaa caaaagagaa 780  
ataccaggta ggaaagaaga gttactattc ctgagaaata atcaagaaca tatttaattt 840  
aaactaatga tgtgaactat ttagttttga tgtccgttat gtgattctgc ttttacttga 900  
gtaaaattaa agtgttttaa tttgagatca aggagaagat agtggaacaa aatgttatat 960  
agataatatt tttctaattg aaataaaaata ggcagatttc aaaaaaaaaa aaaaaaaaaa 1020  
aaaaaaaaaa aaaaaaaaaa aaaactcga 1049

<210> 36

<211> 489

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (353)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (383)



<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (385)

<223> n equals a,t,g, or c

<400> 36

```
gtttgttgcc tgcttgttt aatgttctgg cttgaggcag cgagcccttg actatgccac 60
attgccagga ttttgcaggt tagattgtac tacagcactg ctttggctt gccagactct 120
ggagtcccca cattttcatc ctgttctcag gaaaacactt tgaccactt gaagctctga 180
gctactgctt cacagcttcc tggggtcagt ctccagccaa aaccatagat atcccaamwg 240
cagccaaacc acggctctgg gcgaaggaac gattaggttt actstaggtt tccacaccct 300
gatgctcctg gcctttaatt tgacaactct ggactgccag gttttcacag acngttggac 360
atggattcaa gattgggaat gtnangggat ggtttggcaa cagtgtttgc tttgagcagt 420
tttaaaattt ggccaggaga ttcattgtgag caagaaatgt tagataccag ttttttgggg 480
tcaagggggg                                     489
```

<210> 37

<211> 598

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (595)

<223> n equals a,t,g, or c

<400> 37

```
gactcccaga gtgctgggat ttcaggtgtg agccactatg cccagcctaa tacgtggatt 60
tttaaagctt caggttcttg ttcagaagtt tcctgggtct cattaaaata atgaggcact 120
cagaattggt ctaataaaaa taacgaccat ttctttctac tccagtctct ttcacaaact 180
tcttagtgaa aatgacaagt gaggcccttc agtaggggca ttttcagtgg agataatagc 240
ggcagacctg agaccttggt ctaggtagtt tattctcatt tctgaacaga tgatgaattt 300
tctcagatga ccctaagaaa ttgttttacc aaaaacaaag tgatctattt gctttgggag 360
gaactccctt ctttttgttt ctcttccctt ccccccttcc cctgcggttg tagagcccgt 420
tctgtccggt cgtggttctg tccagccatg atccgggagt cctagcttgc taatggamca 480
cctgagatgt tccttatggc tcaaggctwa aattgaaggt ggaaccacc tgaagcctcc 540
gtggggaggc cttgsgggag gttwggccta aargcattag gaagatacta gcttnagg 598
```

<210> 38

<211> 762

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (725)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (730)  
<223> n equals a,t,g, or c

<400> 38

```
gtctttggga actcaaaaag ttatctgtgc attttcatcc ctccgtggcc ctttttgcaa 60
agaccatcct tcagggaaac tatattcagt attcagggga cccactgcag gatttcactc 120
taatgagatt tttggatcga tttgtatacc gaaatccaaa gcccataaaa ggcaaagaaa 180
acacagatag tgttgtgatg cagccgaaaa gaaaacattt tattaaggat attcgtcatc 240
ttcctgtgaa cagtaaggag ttccttgcaa aagaagaaag ccaaatacca gtggatgaag 300
tgtttttcca caggatttat aaaaaagttg ctgttaaaga gaaacaaaaa cgggatgcag 360
atgaagaaag tatagaagac gtggatgatg aagaatttga agagctgatt gacacatttg 420
aagatgataa ctgtttcagc tctggaaagg atgatatgga ttttgctgga aacgtgaaaa 480
agagaacaaa aggagctaag gataacacat tagatgaaga ttcagaaggt agtgatgatg 540
aacttggtta cctggagac gatgraagtt tctttaggga agtatggatg atggaagaat 600
ttgctggaag ttgatggaag atgggagggg acattycatg ggatgtgttt agatggatgg 660
aaagtggaga gtgtttccag aacttggaag ttccactccc aaagtccagt accaaggaaa 720
agccnagagn aaaagggtag cagtggattt ttggaccttg gc 762
```

<210> 39  
<211> 1958  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc feature  
<222> (1835)  
<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (1885)  
<223> n equals a,t,g, or c

<400> 39

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tcgagttttt tttttttttt ttctcgtgag cttaggccgc tggtttttgt gatttttgtc 60
tgattgcaat gtctggacgt ggtaagcaag gagggcaaac tcgcgccaaa gcgaaatccc 120
gctctttctc cgctggtctc cagttcccgg tggggcgagt gcacgccttg ctccgtaaag 180
gcaactacgc agagcgggtt ggggcaggcg cgccggtgta cctggcggcg gtgttagagt 240
acctgaccgc cgagatcctg gagctggccg gcaacgcggc tcgcgacaac aagaagactc 300
gcatcatccc gcgccacttg cagctggcca tccgcaacga cgaggagctc aacaaactgc 360
taggccgggt gaccattgct cagggcgggc tccttcctaa catccaggcc gtgcttctgc 420
ctaagaagac cgagagtcac cacaaggcca agggcaagtg atttgacagg tatctgagct 480
cccggaaacg ctatcaaacc caaaggctct tttcagagcc cccctaccgt ttcaaaggaa 540
gagctaacct cactgcttgt aggtagaagg aaaaaaggca ctaaggttgc aaaagcttct 600
catttcagag agatgccagg atcctaagtg cctgccaaac ttaccaattc taaggaataa 660
gtggatggat ggcattactg attcctacat tactgattga ttctgcatcc gcaaatgtt 720
ttattaaaaa cattctacat catgtgtggg gagataagga ggataaaatg aagagaaaga 780
atattattga ggggaagttc ttctgaatac aaaatgtgtt taatttttta aataagtatt 840
acattcacag ggttcaaact atttgaagta aagagattat atataaagaa tccatccctc 900
aacttaccga ggtggtcact tttctttttc ttgtgtatct gccagattt cattcctgct 960
```

```
gatatcagtc aataatgaat gatacgtggt ttcttcactt ttttcattct tgtcaggtag 1020
cagactgtgt agacttttct gcacttgccc ttttcataac aatctatctt ggagaacttt 1080
ccctatgaga acatacagag ctctctgtac acagttgcat gtactgcatt atgcaaatgc 1140
attatatttt atgtaacctg tccactgttg gtaggcactt gagttgtttt agtcttttgc 1200
tatcaaacag ttctgggatg attaaccctg atttactgca aaattgaaat tgctctgcta 1260
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gttcttaaaa actatgtggc catcaccaaa ttagttattt tgaaccttaa tttcttcacc 1380
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ctatgtgtaa tttcttaatt ttgaaataat tttatttgta atgtgcataa tcttatttaa 1560
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ataaaaggta atgcaaaggg araggaaagc atgtgtcatt aattttctgc ctaggacacc 1680
tccctgggta aattgccatt tcctttcttc cttgcataat gattaggaaa cacatcctcc 1740
tgacctgcct gccctctttt gcctactttt tcatctgcag tcaaggctctg gttttaagac 1800
tgactgttac ttttacaaat ctgtgtgtat tggtnggcta agggcctgta tgggtccact 1860
gctgtattcc caggggccca gcatnggkgc ctggacgctg cckgggcaaa tagtagtcac 1920
ccgaggaaat gggctggatg gaatttcatt gagggcct 1958
```

<210> 40

<211> 477

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (66)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (246)

<223> n equals a,t,g, or c

<400> 40

```
gcccangtct ccgcttncce cgtcttgtac acccctaact cctgaggctc ctccgaatca 60
cgcganggaa agcggagaag ctcaagtggc cgccatgtca gaggcttatt tccgagtgga 120
gtcgggtgcg ctggggcctg aggagaactt tctttctttg gacgacatcc tgatgtccca 180
cgagaagctg ccggtgcgca cggagaccgc catgcctcgc cttgggcttt ctctctggag 240
cggagnaagg cgccgagact gacaacgcgg tcccacagac ttttatcgga cgttttcgcc 300
gcatcatgga ctcttcacag aatgcttaca acgaagacac ttcagccctg ggtagccagg 360
ctagacgaga tggagagggg cttattttcaa acagggcaga aaggactgaa tgactttcag 420
```

tggtgggaga aggggcaggc ttctcagatc acagcttcca acctcggtca gaattaa 477

<210> 41

<211> 860

<212> DNA

<213> Homo sapiens

<400> 41

ggcgacgagc tcgtgccgaa tcggcactag tggaggatgg gcttctcgag ggttctctgc 60  
ttcactaact cccgagagaa ctcccacagg ctcttcctgc tggtgcaagc ttttgggggt 120  
gtggacgtgg ctgagttctc ctgcgcgtac gggcctggcc agaggaggat gatcctgaag 180  
cagtttgaac aggggaagat ccagctgctc atcagcacgg acgccaccgc gcgaggcwtc 240  
gacgtgcagg gtgtggagct ggtggtgaac tacgacgccc cccagtacct gagaacctac 300  
gtgcaccggg ttgggaggac agctcgcgct gggaaaactg gacaggcctt cacactgctc 360  
ctgaaagtgc aggagaggag attcctccga atgctaactg aagctggggc acctgagttg 420  
cagcggcacg agctctccag caagctgctg cagccgctgg ttcttcggta cgaggaggcc 480  
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gctcaaaggg ccggaggggac tkaacgctca ccaccctgac cctycttyca gagcagtgtc 600  
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gagacttcag ggcttgtcac ttctcagagt tggaggtcag gatggctgcg ggcaatgaag 780  
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<210> 42

<211> 1131

<212> DNA

<213> Homo sapiens

<400> 42

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actattttaga gtccagaggg agccatggca ctagaaatag ttgataatga aatgagattt 180  
tatgaagtat accgctccac ctatgagcgt ctgtctctgt gggcttggga tgtaacagg 240  
agccaaaagg agggaaagtg tgaagaataa agtagatctg agaaattctg agccaatcag 300  
gcttcttaat tcaagagaca aaccaagacg ttctgtcaac tgtgctgtgc tcttcttaa 360  
gccaatgaac cccaattcct ggcagtctac aagaagtctc ttaatgctaa tgaagaattt 420  
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aacaatggta tctctgaaac tcacaacctc aagcccaatc ttgaaaatat gttgtgcacc 540  
aagacgactg cttcagcttc ttctcttctc cttactttct ttaatagata tttattaaac 600  
tgtccagtga aaagggtcca caatgccagc tattgtaaac aacaggtttg cattcatgaa 660  
gctttcattc attctggagt ctactaattt acctgaatgg tgtttgcatt ctgtgaaatg 720  
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gaaataaatg cattttgtag caaaaaaaaa aaaaaamaaa aaaaaaaaaa a 1131

<210> 43

<211> 1334  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1019)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1204)  
<223> n equals a,t,g, or c

<400> 43  
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aggcataatt aaac 1334

<210> 44  
<211> 2351  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1106)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (2324)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2331)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2350)

<223> n equals a,t,g, or c

<400> 44

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tcaaccata aagaccaggt ccagcaccgt ggtcttgga catccctggc ctcaggccct 480
cacctaacag tgaggcagc gctgcccagc cccgcaatgt gcctgctgtc aggcagctct 540
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agatcagttt gtttctttct gtgctggtaa caatgagcgt cgcacagaca tggtttcagg 2280  
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ccaagcttan g 2351

<210> 45

<211> 1587

<212> DNA

<213> Homo sapiens

<400> 45

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tatttttttg tagagatggg gttgtccagg ctggtctcaa actcctgagc tcaagcaatg 180  
tgcccgcctt ggcttcccaa agtgctggga ttataggcgt aaaccactgc acgcagccta 240  
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tcctgcgaag gaaattccag agcctgtatt taagctacct aggcctttac actcccttta 360  
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accagaaaag aacctgggc ctccttctt cagggacaat gcagtagcca cttggcttgt 540  
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tttcatggag tctatgctga tcctttaatt gacaaataaa agatatatat ctgtggtgtg 1560  
caaaaaaaca aaaaaaaaaa aaaaaaa 1587

<210> 46

<211> 379

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (345)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (351)

<223> n equals a,t,g, or c

<400> 46

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gccaccttgt gaagaagggt ccttggttcc cctttacctt caaccatgac tgtaaaatttc 180
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<210> 47

<211> 1920

<212> DNA

<213> Homo sapiens

<400> 47

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gaacaaggag ttaaaagcaa tccatgtgac tcaagccttt cacatactga cagatgggtat 180
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<210> 48



<211> 319  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (306)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (317)  
<223> n equals a,t,g, or c

<400> 48  
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tgaaagtaag cacaagaaga aaaaaagcct tatctttgct ctagattttg caaaggggaa 180  
atttcaacag aacgcaatca ttgctacacg tctgccaaga cacaaggctt gggcgatctt 240  
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ggatanctgg gccttttngg 319

<210> 49  
<211> 278  
<212> DNA  
<213> Homo sapiens

<400> 49  
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taccgcttcg ctggcgggcg cgtggagtga tgaccctrat gtttatcttg ctggcgggcca 180  
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<210> 50  
<211> 652  
<212> DNA  
<213> Homo sapiens

<400> 50  
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tctttggcat ttatttggtt tttctacgtt ttcagtccca tttactccaa gactcactcc 180  
ctgccaccta gtgcatcaga tacagctact tctggctgac ttttcaaggg ggaccaccct 240  
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cctagtcagg actgataccc tttccgtttc agaggattgc caagaaaaaa ctcacagttg 420  
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cagtagctct gccgccttcc ccagagaggg ggtccagggg acatcctgga aggctggggc 600  
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<210> 51  
<211> 943  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (140)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (786)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (843)  
<223> n equals a,t,g, or c

<400> 51  
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caagtaatca ttcccaagca tccagtgtca acgrgacgga cgatgaaaag gcctctcacg 480  
ccggtccagc caacacacac ctgaagtctg agaatgacaa gctgaagatt gccttgacgc 540  
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ctccatctgc cgtgatgaga atgaccggct ccgcaacaag attgatgagc tgggaagaac 720  
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gagctnngag gcagagctcc gagaaaagga gacagagctg gaaagatctt ccggaaaaca 840  
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<210> 52  
<211> 832  
<212> DNA  
<213> Homo sapiens

<400> 52  
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gaggaagtca gagcgatgtg ctgtgaaatc tactaccgtt tgctgggttt gaaaatggag 180  
aaaaagagtg aggaactgag aaacatggat ggccttggga acgtggaaaa gggcactga 240  
aatgggacga catgaactca aggaggctat ttatgacct gtcatttgca acatgaagaa 300  
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gttacactgc ttgaatcctg tcagtcctat actggagtc tgttaataca aaataatagt 420  
aataatccct ctgtttctta tgtttatgcc aacttcaaca aaaagaaact tgactaagag 480  
acaatataag aayttaatgt gtaattaaga aagaactctc caccacgggg aatgtgaaag 540  
gtatatgagt ccccttttcac gatgcatgt catgtctttt aaataagcca tactttatgt 600  
tcaataaaaa gagaataagc aggattcgcm agagaacaca atcccttttt aactgctggg 660  
aagatacytt tagtcattaa tgrctggacg acaatttggg rcacmtatat ggatattggc 720  
cggtttgtga tgatgtgatt gggcctctaa gtgacaacat tgttccctgt atagagttag 780  
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<210> 53

<211> 1554

<212> DNA

<213> Homo sapiens

<400> 53

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gaaatggaac cagcagttag cgagccaatg agagaccaag tcgcacggac tcatttgaca 240  
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tttggaatttc ttgaagcagg cagcttcata ttataccgat ttgttctctg tcaa 1554

<210> 54

<211> 281

<212> DNA

<213> Homo sapiens

<400> 54

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atgcttcatg gaattacgtc atttatactt tataaatcta taatgtgtam tgaattaaaa 120  
acaagcttgg gaaacataaa ctcaagttag aaaatatggg ttgacataa aaccttaaat 180

atgtttcatt tgtttgcttg tttggcttgt ttgtttctaa cacaagtta acctacatgt 240  
gagtcacctt tgggattgat gagtctagrg tttgaaacca g 281

<210> 55

<211> 807

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (770)

<223> n equals a,t,g, or c

<400> 55

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cgtggattgg tgagaggggc catggttggg gggatgcagg agagggagcc agccctgact 120  
gtcaagctga ggctcttttc cccccaaccc agcaccaccag ccagacaggg gagctgggct 180  
ctttctgtgc tctcccagcc ccaactccaag cccatrcccc cagccctcc atattgcaac 240  
agtcctcact cccacaccag gtccccgctc cctcccactt acscagarc tttctcccca 300  
ttgcccagcc aactccctgc tcccagctgc tttactaaag gggaagtcc tgggcatctc 360  
cgtgtttctc tttgtggggc tcaaaacctc caaggacctc tctcaatgcc attggttcc 420  
tggaccgtat cactggtcca cctcctgagc cctcaatcc tatcacagtc tactgacttt 480  
tcccattcag ctgtgagtgt ccaaccctat ccagagagacc ttgatgcttg gcctcccaat 540  
cttgccctag gatacccaga tgccaaccag acacctcctt cttcctagcc aggtatctg 600  
gcctgagaca acaaattgggt cctcagctc ggcaatggga ctctgagaac tcctcattcc 660  
ytgactctta gccccagact cttcattcag tggcccacat tttccttagg aaaaacatga 720  
gcatccccag ccacaactgc cagctctctg attccccaaa tctgcatccn tcttcaaaac 780  
ctaaaaaaaa aagaaaaaaaa aagtcga 807

<210> 56

<211> 656

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (545)

<223> n equals a,t,g, or c

<400> 56

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gctgttggtc tgccaagtat tcctgttcat ccaattggat actatgcatg cacagaagct 120  
cctagwaaaa atgggtggct cagcaccacc agatagcagc tggagaggaa gtctcaaagt 180  
gccctacaat gttggacctg gctttactgg aaacttttct acacaaaaag tcaagatgca 240  
catccactct accaatgaag tgacaagaat ttacaatgtg ataggtactc tcagaggagc 300  
agtggaaacca gacagatagt tcattctggg aggtcaccgg gactcatggg tgytggtgg 360  
tattgacctc cagagtggag cagctgttgt tcatgaaatt gtgaggagct ttggaacact 420  
gaaaaaggaa ggggtggagac ctagaagaac aattttgttt gcaagctggg atgcagaaga 480  
atttggtctt cttggttcta ctgagtggc agaggrrat tcaagactcc ttcaagagcg 540  
tggcntgggc tttatattaa atgctgactc atctatagga aggaaactac actctgagga 600  
gttggtattg acaccgcttg atgtacagct tggtaacaaa cttaccaa gagctg 656

<210> 57  
<211> 794  
<212> DNA  
<213> Homo sapiens

<400> 57  
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gcagccccga gtaccggcag cggcgcgagc gcaacaacat cgccgtgcgc aagagccgcg 180  
acaaggccaa gcggcgcaac caggagatgc agcagaagt ggtaggagctg tcggctgaga 240  
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tcttcaagca gctgcccagc ccgcccttcc tgccggccgc cgggacagca gactgccggg 360  
aacgcgcggc cggggcgggg gagactcagc aacgacccat acctcagacc cgacggcccc 420  
gagcggagcg cgccctgccc tggcgagcc agagccggcg ggtgcccgt gcagtttctt 480  
gggacatagg agcgcaaaaga agctacagcc tggacttacc accactaaac tgcgagagaa 540  
gctaaacgtg tttattttcc cttaaattat ttttgtaat gtagcttttt ctacatctta 600  
ctcctgttga tgcagctaa gtacatttgt aaaaagaaaa aaaaccagac ttttcagaca 660  
aaccttttgt attgtagata agaggaaaag actgagcatg ctcaactttt tatattaatt 720  
tttacagtat ttgtaagaat aaagcagcat ttgaaatcgc aaaaaaaaaa aaaaaaaaaa 780  
aaaaaaaaaa aaaa 794

<210> 58  
<211> 1155  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (135)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (432)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (443)  
<223> n equals a,t,g, or c

<400> 58  
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agacgtttgc aaaanggact aggtcatag taacttcgcc tgataaaca cttgatgcag 180  
atgtttcccc caagcccact attttcttcc ttcraattgct gaaacaaarc tccagaaggc 240  
tggaacatac ctttgtcttc ttgagaaatt tttccwgtat rttattaaga tacattggsa 300  
agaaaagaag agcaacacga ttctgggatc ccaggagggg gaacaccatg gaagactaac 360  
gacacatata tgaaatttag ctggttaacg gtgccagaaa agtcactgga caaagaacac 420  
agatgtatcg tncagacatg agnaataata aaaacggrrgt tgatcaagaa attatctttc 480

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ctccaataaa gacagatgtc atcacaatgg atcccaaaga caattgttca aaagatgcaa 540
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tcctcaagag tgtgggtctat tttgccatca tcacctgctg tctgcttaga agaacggctt 660
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tcggttattg tccctagaag cgtcttctga ggatctagtt gggctttctt tctgggtttg 780
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aaaaaaaaaa aaaaaa 1155

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<210> 59

<211> 492

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (201)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (454)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (467)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (473)

<223> n equals a,t,g, or c

<400> 59

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ggcacgagtg caggggtcaa cccttataaa tgcagtcaat gtgagaaatc cttcagtggg 60
aaattacgcc ttcttgtaca ccagagaatg cacacaagag agaaaccata tgaatgcagt 120
gagtgtggaa aagccttcat taggaattct caactcattg tacatcaaag aactcattca 180
ggagagaaac cctatgggtg ncaatgaatg tgggaaaacc ttctctcaaa aatcaattct 240
cagtrcacat cagagaacac atacaggaga gaagccttgt aagtgcactg aatgtgggaa 300
agccttttgt tggaagtcac agctcattat gcatcagaga actcatgtag rtgacaaaaca 360
ttgataattt tacgaaactc tgaaaagtgg attcacaaga gatagaaaca atcatatata 420
aagagaaact ctgtaatggg aatcatcttg tccntcttcc agaaaantca tantgaatag 480
aaactttatg ga 492

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<210> 60

<211> 1617

<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1590)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1592)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1595)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1617)  
<223> n equals a,t,g, or c

<400> 60  
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cagctgctgc aggagcgcga acagctggag cggcgctgcg ccaccttga gcgggacagc 180  
gggagctcgg gccgaggctt gaggagacca agtgggaggt gtgccagaaa tcaggcgaga 240  
tctccctgct gaagcagcag ctgaaagagt ctcaggcaga gctggtgcag aagggcagcg 300  
agctggtggc tctgcgggtg gcgctgcggg agggccgtgc tacgctgcgg gtcagtgagg 360  
gccgtgcgcg ggggtctacag gaggccgccc gagctcggga gctggagctg gaagcctgtt 420  
cccaggagct gcagcgacac cgccagggaag ctgagcagct gcgggagaaa gctgggcagt 480  
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tttcacactg taaatttctt gtacaaaacc aaagaaaaaa ttaaaaaaaa tttttttgtt 1560  
taaaaaaaaa aaaaaaaaaa aaaaaaaaaa cncngggggg gggccggtac ccaattn 1617

<210> 61  
<211> 1653  
<212> DNA  
<213> Homo sapiens

<400> 61

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aaatatgaga attttaaaagt aatatattga tyaaagatca ctgatgatat agatataata 60
tatcataaca gaaggaaagt aaatggactt gagcttaact tctcaccctg gaattatttag 120
tgggtgaaga ggggaatcat tagcattctg ggcgttttta tattaatgt tttgtgaata 180
tgccagaaga tctgccttca acttgaataggaggcaagata gtaaygcttg atggtaactt 240
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attccataaa gtatgatgta tgctttggaa gagggatatg agtgatacaa ttgttatata 360
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gagttaagaa gatttttcgg cttgagcaga agatgtgttt gttttgcatt tttcagctcc 480
aaggaaatag ccccatggc tttaaaaggc cctgaagttc agatagtagt aggtagtgtt 540
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gtttactatg tgccaagcaa gcatatgata actaattctt aacaactcta tgaggcaggg 900
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gttttccaca agcttatgaa gacattgttc tgtttaggct gtaaacgtgt tttatttctt 1620
gatgaaaaat gttcttctat ttatatgatc cca 1653
```

<210> 62  
<211> 440  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc feature

<222> (408)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (410)

<223> n equals a,t,g, or c



<220>

<221> misc feature

<222> (431)

<223> n equals a,t,g, or c

<400> 62

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atctctgctc ccaaacattc accatatgag actgtagacc taataaaaaat aaacataaga 180
ttatgagaat aaaatatcaa taaatatattt atactatctt gcagtgggat aggaattgtc 240
tcactcctgc tggggtgact ccccatgaac cccagggctc ttcagttcca aagrggaaaa 300
aggggaacag atggcctcct ccccttcctc actcccctgg gacccaggat tgctccctga 360
aggttttcga gccaccctcc tccccattcc tctggggggg ccaaggangn ttaaacagca 420
gggcccttcc nggtgtgccc 440
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<210> 63

<211> 1062

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (948)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (974)

<223> n equals a,t,g, or c

<400> 63

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cacaggtgca gcctcacaga agaaggcttt ccgttcttca ggatttgga tagagttcaa 180
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ggaaatccaa aaatctggaa attggattcc aagatccatc aaggagcaaa gaagggggtta 660
atgaagcaga ataaagctgt ctgaccagag agaaaaggaa ctatacagca tagtggaagt 720
ttgtgtacta aaattgctat ctactggtcc tttggaattg aagtagtaga aacctaaagg 780
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aaaaacctgt ttaaaaggtc gacggtatcg ataagcttgg atatcgantt cggcacgagc 960
ccacctctac ctcnnggggg accggcctgg acgctggtgg ccccgggacc cagcagagct 1020
gggggaaggg tcagccccc aaagaaatgg ggggtgcatg tg 1062
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<210> 64

<211> 422  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (252)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (349)  
<223> n equals a,t,g, or c

<400> 64  
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atccccagc atctccctgc tagctgctgt tccctctcct cccgctggct gggcctgctg 180  
ccaagctgtg gtgactcagc tgagctggca cattgacccc agcttattgt ttaaaaacca 240  
gcccgaactg gnaatttatg gtttcctatc cccttccaca catttttctg gccacaaggc 300  
aagaaactta tctctggcat cttcagattt cttstatttw attttgggnc ttcccttgcc 360  
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ca 422

<210> 65  
<211> 709  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (674)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (684)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (692)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (697)  
<223> n equals a,t,g, or c

<400> 65  
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ccttgaaatt ggtgcatatt agctgcttct agtcagccct ctigcccaga atccccaaaa 180  
agaaaattgt tagttcaggg attgtagctt tttttttgtt ttaacatgag atatgtgatt 240  
ataataaact tcaagtattc aggaccattt tatggataaa aggagaatct aactttttaa 300  
agttgggaaa atgatttaaat attggaaact caagagttac aaatttcttac agttatttca 360  
aaactaaagg tttcttttaga gctccaaatt tagagctata aatcctatat ccgtaatcaa 420  
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tgtaagcctt agcattggta ctttcttgwa wtatcttttt gcatgccatt atgatcagaa 540  
aaaacaaaaa gctacccaga aagggcagcc acattctaaa tgataggctt ttacctccct 600  
gagggggctg ctaggtacct acctggatta ggaattcatt tggtaaacia cagggggcct 660  
tttaaactta aatnaccatt tccnaataat tngtttnccg tttattccg 709

<210> 66

<211> 1302

<212> DNA

<213> Homo sapiens

<400> 66

gctcgacaag aagagaaaaga aggacatgct gaatagcaaa accaaaactc agtattttcca 60  
ccaggaaaaa tggatctatg ttcacaaagg aagtactama gagcgccatg gatattgcac 120  
cctggggrra gctttcaaca gactggactt ctcaactgcm attctggatt ccagaagatt 180  
taactacgtg gtccggctgt tggagctgat agcaaaagtc cagctcacat ccctgagtg 240  
catcgcccaa aagaacttca tgaatatattt ggaaaaagtgt gtactgaaag tccttgaaga 300  
ccagcaaaac attagactaa taagggaact actccagacc ctctacacat ccttatgtac 360  
actggtccaa agagtcggca agtctgtgct ggtcgggaac attaacatgt ggggtgtatcg 420  
gatggagacg attctccact ggcagcagca gctgaacaac attcagatca ccaggcctgc 480  
cttcaaaggc ctcacettca ctgacctgcc tttgtgccta caactgaaca tcatgcagag 540  
gctgagcgac gggcgggacc tggtcagcct gggccagctg cccccgacct gcacgtgctc 600  
agcgaagacc ggctgctgtg gaagaaactc tgccagtacc acttctccga gcggcagatc 660  
cgcaaacgat taattctgtc agacaaaggg cagctggatt ggaagaagat gtatttcaaa 720  
cttgtccgat gttacccaag gaaagagcag tatggagata cccttcagct ctgcaaacac 780  
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tgctccgttt cactttcacc ccaggacttt atcaacttgt tcaagttctg aatcccagca 900  
catgacaaca cttcagaagg gtccccctgc tgactggaga gctgggaata tggcatttgg 960  
acacttcatt tgtaaatagt gtacatttta aacattggct cgaaacttca gagataagtc 1020  
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ttctcactag aattgggtatg gaaaagcaaa atactgtaaa taaacttttt ttctaacaat 1140  
ttgccagcaa gactataagg gcaataattc tatttcagcg gtgaaaatgg agtcctctta 1200  
atggtcacag aaactctctt atagttccct aggaagaaaa aggcaaaact caaatacaaa 1260  
ataggacgct ttgtttacaa tgtgaaaatt tgtttagaaa ag 1302

<210> 67

<211> 1046

<212> DNA

<213> Homo sapiens

<400> 67

aattcggcac gagcttctgt tgggtgttatt ttcaattcta tttccagtgc cacaatagag 60  
tgatatttaa gcaactccta caggcgaagg ccctgcagtt cctccagatt gacagttgca 120  
gactgggcag tgtcaatgag aacctctcag tattgctgat ggccaaaaag tttgaaattc 180  
ctgtttgccc ccatgctggt ggagttggcc tctgtgaact ggtgcagcac ctgattatat 240

ttgactacat atcagtttct gcaagccttg aaaatagggg gtgtgagtat gttgaccacc 300  
tgcattgagca tttcaagtat cccgtgatga tccagcgggc ttcctacatg cctcccaagg 360  
atcccggcta ctcaacagaa atgaaggagg aatctgtaaa gaaacaccag tatccagatg 420  
gtgaagtgtg gaagaaactc cttcctgctc aagaaaatta agtgctcagc cccaacaact 480  
tttttctttc tgaagtgaag gggcttaaaa tttcttgga atagttttac aaaaatggat 540  
ttaaaaaatc ctaccgatca agatgagttc agctagaagt cataccaccc tcaggaatca 600  
gctaagtaat tattacttga ttcttttagc aaatcaatgc acgttatcct acttaatcct 660  
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tatcaagggc tggcacctag acattaaact gtaatttgaa aataagcaac atgttgcata 780  
acttggttga ataattcctt gttctgttta acacttgta taaattagca gaataaaaaat 840  
agtcgtgcaa caccgggggt atctggtatg caacgaaggg raaaatattt cactgattaa 900  
ccccgaagtg gttttgcatc ttttccttgc ttaatctaag catattatta gagaagtcac 960  
accatgctga agctaattgag ggcaaaatgg tagtccatag attattttta aataaccctt 1020  
taagggtata aaagtttaaa aaaaaa 1046

<210> 68

<211> 501

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (45)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (311)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (404)

<223> n equals a,t,g, or c

<400> 68

caagagaaga aattatgaaa gggcgtgaat accaagaggc aggttattgg gggccatctc 60  
agaggctgcc caacacaggc tactcttttg ccccgatga ttcattgtcc ttccaaatgc 120  
aaaatgcccc gtcccaagat ctccaaaagt cttatcccat tataggatta gctcagagtt 180  
cagaacctta tcatctaaag ttccagggtg aggtaaggct tttgggtgta gttattttat 240  
tacagctcct agcacacttc tagtggtata ctaatgcctc ttctgtatag ttcacttgga 300  
aataaatgat ntaggtactt tgatccatat ggagttctgt gtaggaagat caacctagat 360  
ctgatgttag ctggtaaaca ctgtagtgtt aaaaaggcac tgnnttatga tagctctttt 420  
tgacagtgcac tgggattatg gggcaaatgg taaatggcat gcaattgaga tcagtattag 480  
gttattaatt gaactggaat c 501

<210> 69

<211> 581

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (149)

<223> n equals a,t,g, or c

<400> 69

```
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cattaactat taattcaagc aatatgtatt atagaaccgt tttgtgtagc attggaatat 120
tgtccatttt gtaagtcatt gtgaatgtnc ttaattatca gcttgaaggt atttttgtat 180
taaaagttga cattgaagaa cctaagtggg tgatgggatt tggggccagt agtgaaagta 240
tgtttcctct aaaatatttc cctaaacagt ggtatacatg gttattttat tatgagattt 300
gtatatgtyc tgtgtttctc tgtgaacaat gtttcagtct ctctgtcacc atatgtaagg 360
ggaagtccac aaatatagac tacattgcac aaaactaaaa ttgttaatta caagaaaata 420
taggtgctta ctttttgaag gtttattaat acatatgggt gtcacaatac gtatatatga 480
taaagtgtgt acatatacag atgtttatgg tgtataaatt tttctatacc caaaaaaaaaa 540
aaaaaaaaaa aaaaaaaaaa aaaaaagggg gggccccccc a 581
```

<210> 70

<211> 1076

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (911)

<223> n equals a,t,g, or c

<400> 70

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tccaaacaga gggagcagct atttaagggg agcaggagtg cagaacaaac ragacggcct 60
ggggatacaa ctctggagtc ctctgagaga gccaccaagg aggagcaggg gagcgacggc 120
cggggcagaa gttgagacca cccagcagag gagctaggcc agtccatctg catttgtcac 180
ccaagaatc ttaccatgaa gaccctccta ctggtggcag tgatcatgat ctttggccta 240
ctgcaggccc atgggaattt ggtgaatttc cacagaatga tcaagttgac gacaggaaag 300
gaagccgcac tcagttatgg cttctacggc tgccactgtg gcgtgggtgg cagaggatcc 360
ccaaggatg caacggatcg ctgctgtgtc actcatgact gttgctacaa acgtctggag 420
aaacgtggat gtggcaccaa atttctgagc tacaagtta gcaactcggg gagcagaatc 480
acctgtgcaa aacaggactc ctgcagaagt caactgtgtg agtgtgataa ggctgtgtgc 540
acctgttttg ctagaaacaa gacgacctac aataaaaagt accagtacta ttccaataaa 600
cactgcagag ggagcacccc tcgttgctga gtcccctctt ccctggaaac cttccacca 660
gtgctgaatt tccctctctc ataccctccc tccctaccct aaccaagttc cttggccatg 720
cagaaagcat cctcaccaca tcctagaggc caggcaggag cccttctata cccaccaga 780
atgagacatc cagcagattt ccagccttct actgtctccc tccacctcaa ctccgtgctt 840
aaccaaagaa gctgtactcc ggggggtctc ttctgaataa agcaattagc aaatcawrwa 900
aaaaaaaaaa naaaaaagaa aaaaagtttt ggcctaaatg agtcgtatta cagttgacgc 960
ggccggcgaa tttagtagat ggtgtaattc gacccgagaa attccggaac cggaactctg 1020
aggggtgaca agtttcccca agagcggcgg attaaggctt gggcggacaa agggcg 1076
```

<210> 71

<211> 376

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (347)

<223> n equals a,t,g, or c

<400> 71

```
gcccacgcgt ccgaggaggg cgcstttcc ggtctgggtc ccsgagagga ctgccttgct 60
cacctgtccc ctcggcgcgg ccccggggag ctcccagag gccccmggga tcgctggccc 120
tccgaactcc acagcaatga gcaagttggg caagttcttt aaagggggcg gctcttctaa 180
gagccgagcc gctcccagtc cccaggaggc cctggtccga cttcgggaga ctgaggagat 240
gctgggcaag aaacaagagt acctggaaaa tcgaatccag agagaaatcg ccctggccaa 300
gaagcamggc acgcagarta agcgagggat cwgmawaaa tagatgnttt gatgcaagag 360
atcacagagc aacagg                                     376
```

<210> 72

<211> 374

<212> DNA

<213> Homo sapiens

<400> 72

```
aattcgacsa gccagggcac cctgcccag tatcccamgc agaggagca gaaccagcgg 60
tgtaactact gtgcttgaca cccagggcag gtcttttttt aactcaccga tcttccatgc 120
aacaaaattg ttttctgtga aaagcaggaa atgaataaca acagcgtagg tactccactt 180
caaatttccc aagaaattca gaagaattgt gaacaagttg ctggtttcac aatactgcaa 240
gacactgcaa gttattccaa gttcctacag gacaacgatg cacaattatt tacttactta 300
tgtttaaata tacctatcag tttgactttc atcctttggt gacattctaa taatttatgt 360
aaataattat tcag                                     374
```

<210> 73

<211> 419

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (221)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (411)

<223> n equals a,t,g, or c

<400> 73

```
aattcggcag agctgcattg tcttttaggg ccaatggact tggaggcata gagattttat 60
aactactgcc agaaccctaa tattgccagt sggcctcttc tgctgctgtt gctagctgtc 120
ttcttctggg ggaaatgggt tgggttctaa atatgaatta acacagggct gtcttcgatg 180
aattcagcac aaaatgttct cagcaattga acactcggag ngaagtgtta ggcatttagt 240
gcagactcat agaatagcag gacagggagg gatttggatc tgggcaagca ggagatgggt 300
atgaacatct gtcttttgag acctgccgag gtggcaatga aggtagaggc ccctgtgttg 360
```

agggtctttat tcaagaggct gtgggtccctt tgggacttaa catagcatcc nttagacag 419

<210> 74

<211> 286

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (134)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (154)

<223> n equals a,t,g, or c

<400> 74

gcaggcgact tgcgagctgg gagcacttta aaacgctttg gattcccccg gcctgggtgg 60  
ggagagcgag ctgggtgccc cctagattcc ccgccccgc acctcatgag ccgaccctcg 120  
gtcccatgga gccnggcaat tatgccacct tggnatggag ccaaggatat cgaaggcttg 180  
ctgggagcgg gaggggggcg gaatctggtc gcccactccc ctctgaccag ccaccagcg 240  
gcgcctacgc tgatgcctgc tgtcaactat gcccccttgg atctgc 286

<210> 75

<211> 633

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (89)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (531)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (570)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (623)

<223> n equals a,t,g, or c

<400> 75

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aggtagaaaa gcgagcagcc gtcctttcac agcctcagaa agtgctcgct tcccttcggg 60
ggcttttcgcg aatccccagg caatctcgna ggcggtatth gacctgtcca aagacgactt 120
gatacctcta taatgtaaca gaaaagggtca gaaaatatta agcaagtaga agtgtggagc 180
atattaagca agatgaacat ctcgggaagc agctgtggaa gccctaactc tgcagataca 240
tctagtgact ttaaggacct ttggacaaaa ctaaaagaat gtcatgatag agaagtacaa 300
ggttttacaag taaaagtaac caagctaaaa caggaacgaa tcttagatgc acaaagacta 360
gaagaattct tcaccaaaaa tcaacagctg aggggaacagc agaaagtcct tcatgaaacc 420
attaaagttt tagaagatcg gttaagagca ggcttatgtg atcgctgtgc agtaactgaa 480
gaacatatgc ggaaaaaaca gcaagagttt gaaaatattc cggcagcaga ntcttaaact 540
tattaccgaa cttatgaatg gaaaggatan tctaccggga ggaattaaaa gctttctgga 600
caactccgcc ggaattgnga tgntcaccgc ttc 633
```

<210> 76

<211> 256

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (48)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (134)

<223> n equals a,t,g, or c

<400> 76

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agcacaagtt caggaccagc ctgcgcaaca tagcaagatc cccatctnta caaaaaaaat 60
aaacaattag ccagggcata gtggcatatg cccattgtcc catctactct ggaggctgag 120
gcgggagggt cgangttcac agaaccacca taaccatcc agctagccag gtagaaggcc 180
tccaggtccg acgttgcatc ccccagggtc tgatgctgtc tgcaatcttc atccctagge 240
agwagagcta aaaatg 256
```

<210> 77

<211> 694

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (668)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (673)



<223> n equals a,t,g, or c

<400> 77

```
agcagcaagg ccaagcatgc aagaktcacc atccaccctg gccatgatgc agggcctcct 60
ttgctggacc cgcagccctg caggacagag actggcagcg caccgtcatc gccatgaatg 120
ggatcgaagt aaagctctcg gtcaagttca acagcagggg gttcagcttg aagaggatgc 180
cgtcccgaaa acagacaggg gtcttcggag tcaagattgc tgtggtcacc aagagagaga 240
ggtccaaggt gccctacatc gtgcgccagt gcgtggagga gatcgagcgc cgaggcatgg 300
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ycttcgacgt caataacaag gacgtgtcgg tgatgatgag cgagatggac gtgaacgcca 420
tcgcaggcac gctgaagctg tacttccgtg agctgccccg gccctcttc actgacgagt 480
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tgctcaacct gctgctgtcc cttgccggag caaaccttgc ttcamctttc cttttccttt 600
ttggraccam ctgaaaaagg gttggcagag aaggagggca gttcattaag ttccttgcaa 660
aaaacttngc canggttttt ttggcccaa ggtt 694
```

<210> 78

<211> 2562

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (75)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2556)

<223> n equals a,t,g, or c

<400> 78

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cttgacgatg acgangatgt aaaagtgtgt gctggggatg atgtgcagac gggagggcca 120
ggagcagaag aaatgcgtat aaacagctcc accgagaaca gtgatgaagg acttaaagtg 180
agagatggaa aaggaatacc gtttactgca acacttgctg catctagtgt gaactctgca 240
gaggagcacg tagccagcac taatgagggg agagagccca cagactcagt tccaaaagaa 300
caaatgtcac ttgttcacgt ggggactgaa gcctttccga taagtgatga gtctatgatt 360
aaggacagaa aagatcggct gcctctggag agtgcagtgg ttagacatag tgacgcacct 420
gggctccccg atggaagggg actgacaccg gcactctycaa cttgtacaaa ttctgtgtca 480
aagaatgaaa cacatgctga agtgcttgag cagcagaacg aactttgccc atatgagagt 540
aaattcgatt cttctcttct ttcaagtgat gatgaaacaa aatgtaaacc gaattctgct 600
tctgaagtca ttggccctgt cagtttgcaa gaaacaagta gcatagtaag tgtcccttca 660
gaggcagtag ataatgtgga aaatgtggtg tcatttaatg cttaaagagca tgagaatttt 720
ctggaaacca tccaagaaca gcagaccact gaactctgcag gccaggattt aatttccatt 780
ccaaaggccg tggaaccaat ggaaattgac tcggaagaaa gtgaatctga tggaagtttc 840
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gctgagtcct agagcctcct gagggacaac tctgagaggg acgacgtgga tggtagacca 1020
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gagttggaaa ctctggagag caacctctta gcacagcaga attcactgaa agctcaaaaa 1140
```

```

cagcagcaag aacggatcgc tgctactgtc accggacaga tgttcctgga aagccaggaa 1200
ctcctgcgcc tgttcggcat tccctacatc caggctccca tggaagcaga ggcgcagtgc 1260
gcacacctgga cctgactgat cagacttccg gaaccatcac tgatgacagt gatattctggc 1320
tgtttgagagc gcggcatgtc tatagaaact tttttaataa aaacaagttt gtagaatatt 1380
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rgcacggtaa aaaaaaaaaa aaaaaaaaaa aaaaanaaac aa 2562

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<210> 79

<211> 1610

<212> DNA

<213> Homo sapiens

<400> 79

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aattcggcac agggaaacat tctggtaatt tgtagagatc tgttggcatc tctgcttcac 60
aaactggaaa aaatcatttg taagtcttgc taattacttt tcttgagaaa gaaaaaaat 120
gctacagttg caaacaaatg tatagttttc aaaaagaagc aacttttttg ctcccagtt 180
tattcttagt ttccagccca cgccttgcca tagsratagg catagtgatg gcctcaattc 240
tttctctctt gcatccgtac cttttgctgt gtgactttgc agctcctctc attaaagagg 300
cagagccccc tctcccacc ataggagcag gttttgagag taacagaatg aagtgaatat 360
gacactgtgc cagttctaag accagccctc aaaggttcat gtgtttctgc ttgctttcac 420
tgtatttgaa atgttgctgt gagaaagaca tctctgaaac agctgaatgg tcctaagaaa 480
aggatgagag atgcaggag cagagctccc aactgaggcc agcctagatc acctaagagc 540
caggccccc gtttactctc atgtgtaagc aataaatgct taccagagca ataccaccaa 600
ggtttgtggt tggtttatat acagcattaa tgtggcaata ggtgcaatac accctgttaa 660
acaaaccata cacatatgac tctaacccta atcataaatt gattcagttt gttcagttcc 720
acaacgctgt ttcctccaga atctcacaga tgacttacta aatccaacac aaatacacct 780
cagactttct gtctagctcc caaccagtta aaagcaattc taaatatatt ttttcttagt 840
cgtagtgcaa aagtatattc tctcccttct tctatagttt tctctcattt tgtcttcaga 900
cctagaagca tgagagccca gctgtcaaag tcatctagac ccccttcaga aggtcattaa 960
atgtgtctat ttcacaggat tgcaagataa aatacagaat gccaggttra atttgaactt 1020
cggataaaca acaaaattttt ttttagtata agcatatccc atacaatatt tgggatatrc 1080
ttatatTTTT atattgttta tctgacgttc aagctractg ggcacacctg atttttctta 1140
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gcagaatctg ccatatgagt aatagaagtg agcaggccca ggactcccta agtcaagaaa 1260  
ccaagaggcg tcattacgga aaagagtaac tcaccctgtg tgctccttgg tagttctccc 1320  
tcagcgatgc ccccatgtta tgaatgggga aaagtctact gaagggttca tagtgaagaa 1380  
acttttttga tgatttctgk tgggtgggtt tggatacctt caagggatca gaaaataata 1440  
tacttaggaa atttttgtaa tgtcatcatt actctctaca ttattattat gacggttaca 1500  
attgtttaat ctagggtgtg ggtatgtggg ttatattgta catgattttt aacttgtctg 1560  
catgtttgaa attataataa agtcaataaa taaattattg agacactctt 1610

<210> 80

<211> 1048

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (131)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (997)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1021)

<223> n equals a,t,g, or c

<400> 80

accagaccaa ttgcgccacc acaccaaatt ccggtggata ccctcmgtca tgttatcaat 60  
cagacgggag gctacagtga tggccttggg ggaaattcac tgtacagtcc acataattta 120  
aatgctaata naggttgga ggacgcaaca actccatctt ctgtgacttc tcctacagaa 180  
ggcccaggaa gtgtgcactc ggatacctct aactaatctc tggccacact tttccctgag 240  
ctacatgcct tgataagtgc attcagagca ataggaggaa aaggaaagcg tttttgtagc 300  
ccaccatcta cagctttact gtaaaacctt gtcttattcg agaacttggg aaatctgttt 360  
tttaaggaat cataatcatt tgtatttata cttaaaaaca cacaatgtta aaaaaataa 420  
agcactttat ccaattaggc caagatttaa cattgttgac agtcctgtag ctattttatc 480  
ataatttatt atcaatattt tacattaatg gtttcacagt tgccaattac ttggccttaa 540  
gggtaaaaag tacaatatac actaaacctc aaccgttaaa gcagatgcaa aaattcacct 600  
cacctaaatt gaacttcttg catatttcca ttactgactt ggattgtctt tctttcatat 660  
cactaatgga gttggaataa agagctgttt gcctatccct gttaatgatg gttgtgttta 720  
agaatcttcc tcgtcacgtt tgtgttcaga tctcttatgt tataattaga tcagagactg 780  
gtagcatcgt ttctctctct gaaagcacca gtgcccagag tctgctcggg aataaaatta 840  
tggatccaga ttgttctgag agacgaagat acttgctgct gatagagggtg aaaacgagat 900  
tgatccgtct ggggttttac ggtgtgcact ggggtgctgca cagacttgtc aaggtttgcy 960  
acgtccyckg ggcactgcma aaggcccgcc cccgggntgt tgtaaaaatg tagccaaaga 1020  
ntatttaaac atcccaccaa ccaaacac 1048

<210> 81

<211> 1136

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1124)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1131)

<223> n equals a,t,g, or c

<400> 81

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ggacagattg acttttttga ccctacattt gactatgaga tgatcttccg gggaacagga 120
gcactgatat ttgtcattga ctcacaggat gattacatgg aagccctggc caggctccac 180
ctcacggtga ccagggccta caaagtgaat actgacatca acttcgaggt gtttattcat 240
aaagtggatg gtctgtcaga tgaccacaaa attgaaaccc aaagagatat tcaccagagg 300
gcaaacgatg accttgcaga tgctggatta gaaaaaattc acctcagctt ttatctgaca 360
agcatatatg atcattcaat atttgaagct tttagcaaag ttgttcagaa actgattcca 420
caactcccaa ctctggagaa tttgctgaac atctttatct caaattcttg aattgaaaag 480
gcattttctat ttgatgtggt cagtaaaatt tatattgcaa ctgatagtac tccggtggat 540
atgcaaacct atgagctctg ctgtgatatg atagatgtgg ttattgacat ctcttgattt 600
tatggtctca aagaagatgg agcaggaacc ccctatgaca aggaatccac agccatcata 660
aagcttaata atacaaccgt gctttattta aaagaggtga caaagttcct ggctctcggt 720
tgctttgtca gagaggaaag ctttgaaaga aaagggctaa ttgactataa ttttcattgc 780
ttccggaagg ccattcatga agtttttgag gtgagaatga aagtagtaaa atctcgaaag 840
gttcagaatc ggctgcagaa gaaaaagaga gccaccctta atgggacccc tagagtgtcg 900
ctgtaggtga ggtttcagga atgtcttttg aaatcagacc ttatccatga ggctgctgcg 960
ccatgttgca ctaaaggaag aggaagaagg agattgggac acataccatt gatttgttgt 1020
taaaaaaaaa aaattcctgc aaccctcttg atcttctctt ttataaataa agtaagcact 1080
ttgaagcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaangggggg ncccc 1136
```

<210> 82

<211> 297

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<400> 82

```
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gggagagacc caccgaccct gtggggctgg tccctacatc tggcgctctg acgtggggct 120
ctccctcgct gtgtgaagtt gcaccctgag tgcgggatca gcggaggagt tcaacgagag 180
attcctgagg attgcagtct ataaacttgg tgcaggcggc tgaccccgca gctyaacaag 240
atcaagaggc tgataatcaa gcccctcagc ccgaaactca ggctgctcag ggaaaaag 297
```

<210> 83

<211> 2150

<212> DNA

<213> Homo sapiens

<400> 83

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aattcggcag agctcacgag agaggatttg ggcgcctcct ctgtggattc tggccaggcc 60
gggttcggcg gttgctgtra gagcgggctt cccaacacca tgccgtccgc cttctctgtc 120
agctctttcc ccgtcagcat cccagccgtg ctcacgcaga cggactggac tgagccctgg 180
ctcatggggc tggccacctt ccacgcgctc tgcgtgcttc ctcacctgct tgtcctcccg 240
aagctacaga ctacagatcg ggcactttct gtgtctagtc atcttagtct actgtgctga 300
atacatcaat gaggcggctg cgatgaactg gagattattt tcgaaatacc agtatttcga 360
ctccaggggg atgttcattt ctatagtatt ttcagcccca ctgctgggtg atgccatgat 420
cattgtgggt atgtgggtat ggaagacttt gaatgtgatg actgacctga agaatgcaca 480
agagagaaga aaggaaaaga aaaggagaag gaaagaagac tgaggggagc cagctgcttg 540
gagtttgctg ccttcccgtc caccagtgct agctccagc gctgcagtgt gcgtggcggtg 600
ggcatccttc cagctgactc atggtttgaa aaaccgttgt tttatttaaa tatccacagt 660
ggtagggcac acactgaagt tgcttttcag ccagcactga atgtatccat caggacatgc 720
gtcttcaggt gcctgatctt tgtagtcagg ctgtgggaac ggtctctgca gagcttcata 780
actgggaatt tgatttgaag aagtccatgt catatgtgta actagtacta attataaata 840
taaaatacac aatataaaat atgaaactca ataataaaca gtgccacctg tacatgggca 900
ccatgccctc ctccctcgtg tgtgttttct agtgcattgc acagttcgca gtagaggggtg 960
ttttcacctt ccaagacatg gggcaaagtt tggagacacc tggttgtcac tggaggggggt 1020
ggtgtcctcg gcttctcctg tggagcccgg ggtgatgcat aaaatcctgt gtgcctgggt 1080
cagccgcatac acagacaatg acttgacatg aaatgtcagc tgtgctgggg gcagagagac 1140
cttggaagga agctcttgga aaatacgttg tatctcagtt tgatgaacca attcacaaga 1200
ggctaggccc tctctagcaa agttatgggc tgctttactg aaaacagaat ggaagccctg 1260
aagtcaacac tccatggaga agcgtgtctt tcctaattgtc ctggtgttct gttgatttag 1320
gtgcttgagg acacaatgct cccagttctg ttaggacagg catactgtta ctttgcaata 1380
tccactttat aaaatagctc ctgccacgtg gctcttgrtt cctgtcaaat gtggacctgt 1440
agttttaagaa tgacagggtg ttagagaccc agatatatta aaataggtgt tcaataaggg 1500
aatactgatt gtgcattgta tctggatagc atgcctaatt gtgcatttct gaaagttacc 1560
aattcaaaat gtaattggaa cagttatctt tgattagaca agcctgggaa gagaatgttg 1620
agggtgcagag ctcaccagcc aagttcatgc ccctctcggg cctttgtggc tgagaagtgg 1680
gacagaaaga tgattaaggt aatgtgtcct ccctgtagca ttgtccaggg ccgttgtgta 1740
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gtataacatt ttcaccatct gatatggttt ggcttttgtt cccaccccaa attgcatctc 1860
aaattgtaat ccccatgtgt caagggaggg acctgatggg aggtgatggg atcatggggg 1920
tggtttcccc tatgttgta tcataataga gagggagttc tcacaagatc tgctgggttt 1980
aaagacagca gtttcccctg ctgtcactgt ctctctcctg ctgccttgtg aagaaggtgc 2040
ttgtttctcc ctctgccatg attgtaagtt tcccgagctc cccggccatg tggaactgag 2100
tcaattaaac ttcttgttta taaagtaaaa aaaaaaaaaa aaaaactcga 2150
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<210> 84

<211> 601

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (66)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (505)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 84

```
ttgtgtgccg ggggtggtcc ccagaaggag ctgatctgaa caggccggag agtaggaccg 60
gccgtnacac cccacacact ccagcctcgg cccactcctt tgggctctta aggtcctgcc 120
tcaagaacca cttcctgagt cttagtgtat gtgtgtacaa aagaatgaaa gaagtctcta 180
gagctaaagg aaggagatyc gggctgggct gagaagcatc ttccaggatc acggscttcc 240
cgcgggacac accaagccca ttccggatct tgctcttctt gaccatggyt ggcaggytgt 300
ggaggaggas cggagagcag aagaaaggag tattcatcag gttccttatt gtgctgccac 360
tagatgccag gcatgtgctt aggcttgggg ggctgcaagg agaggaagac agcggccctg 420
ccctytgyta gcaggcagaa ccgagttytg gccacamtgt gaaggaaagg cagaagcctg 480
cgktggcary tggtttaagc tcagnnggca gggaaagga agaggagaat ggttttcacg 540
gagcagaagg ttgtgctcaa ggtggacctt ggagaataaa ggggagagct ccagggaaca 600
g 601
```

&lt;210&gt; 85

&lt;211&gt; 534

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 85

```
cgcgtcgacg ttcctcctaa ctctgccag aaacrgctct cctcaacatg agagctgcac 60
ccctcctcct ggccagggca gcaagcctta gccttggtct cttgtttctg cttttttctt 120
ggctagaccg aagtgtacta gccaaggagt tgaagtttgt gactttggtg ttctggcatg 180
gagaccgaag tcccattgac acctttccca ctgaccccat aaaggaatcc tcatggccac 240
aaggattttg ccaactcacc cagctgggca tggagcagca ttatgaactt ggagagtata 300
taagaaagag atatagaaaa ttcttgaatg agtcctataa acatgaacag gtttatattc 360
gaagcacaga cgttgaccgg actttgatga gtgctatgac aaacctggca gccctgtttc 420
ccccagaagg tgtcagcatc tggaatccta tcctactctg gcagcccatc ccggtgcaca 480
cagttcctct ttctgaagat cagttgctat acctgacctt tcaggaactg ccct 534
```

&lt;210&gt; 86

&lt;211&gt; 1037

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 86

```
tgctgactca tctatagaag gaaactacac tctgagagtt gattgtacac cgctgatgta 60
cagcttggtg cacaacctaa caaaagagct gaaaagccct gatgaaggct ttgaaggcaa 120
atctctttat gaaagttgga ctaaaaaaag tccttcccca gatttcagtg gcatgcccag 180
gataagcaaa ttgggatctg gaaatgattt tgaggtgttc ttccaacgac ttggaattgc 240
ttcaggcaga gcacggtata ctwaaaattg gggaaacaaa caaatcagc ggctatccac 300
tgtatcacag tgtctatgaa acatatgagt tgggtggaaaa gttttatgat ccaatgttta 360
aatatcaccr cactgtggcc caggttcgag gagggatggt gtttgagcta gccaatcca 420
tagtgctccc ttttgattgt cgagattatg ctgtagtttt aagaaagtat gctgacaaaa 480
tctacagtat ttctatgaaa catccacagg aaatgaagac atacagtgtg tcatttgatt 540
cacttttttc tgcagtaaaag aattttacag aaattgcttc caagttcagt gagagactcc 600
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aggactttga caaaagcaac ccaatagtat taagaatgat gaatgatcaa ctcattgttc 660  
tggaaagagc atttattgat ccattagggt taccagacag gcctttttat aggcatgtca 720  
tctatgctcc aagcagccac aacaagtatg caggggagtc attcccagga atttatgatg 780  
ctctgtttga tattgaaagc aaagtggacc ctccaaggc ctggggagaa gtgaagagac 840  
agatttatgt tgcagccttc acagtgcagg cagctgcaga gactttgagt gaagtagcct 900  
aagaggattc tttagagaat ccgtattgaa tttgtgtggt atgtcactca gaaagaatcg 960  
taatgggtat attgataaat tttaaaattg gtatatattga aataaagttg aatattatat 1020  
atagttaaaa aaaaaaa 1037

<210> 87

<211> 597

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (582)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (586)

<223> n equals a,t,g, or c

<400> 87

gcgccctac tactactaaa ttcgcggcnc gtcgacaagg agtcctgctt atcacaatga 60  
atgttctcct gggcagcgtt gtgatctttg ccaccttcgt gactttatgc aatgcatcat 120  
gctatttcat acctaattgag ggagttccag gagattcaac caggaaatgc atggatctca 180  
aaggaaacaa acaccaata aactcggagt ggcagactga caactgtgag acatgcactt 240  
gctacgaaac agaaatttca tgttgcaccc ttgtttctac acctgtgggt tatgacaaag 300  
acaactgcc aagaatcttc aagaaggagg actgcaagta tatcgtggtg gagaagaagg 360  
acccaaaaaa gacctgttct gtcagtgaat ggataatcta atgtgcttct agtaggcaca 420  
gggctcccag gccaggcctc attctcctct ggcctctaata agtcaatgat tgtgtagcca 480  
tgcctatcag taaaaagatt tttgagcaaa maaaaaaaaa aaaaaaaaaa aaaaaaaaaa 540  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa angggnggcc gctctag 597

<210> 88

<211> 474

<212> DNA

<213> Homo sapiens

<400> 88

aatccttaac ctctgcatt ttagaaatac tccagagctt gtcttattct taccaaaatt 60  
cctgtaggcc tttgactcct gactcaccct gtctgcagtg tccccagcc tgcaggggtg 120  
ggtgwgtcac agcaaccctc agccaccagc tgttttccat ctgccggcct tcctggggga 180  
gagtccttc cagctgtagc ccctgtctat gggaaaagtc tcatgtcctt ttcattctctc 240

cccactgcac actgtctctc accctagact ataattcaag tgaatttgac ctccatttat 300  
tggacaagcc aggsactgtg ctaggrataa tgwaaacccat tagacaaatc tgaaagggag 360  
ggatcactag actaaggggt agaaatgtgg agatgggagt aactttctgc atgtctttgc 420  
aggaggcggc atgtgagaaa gcttttttga agaggctggca cctggagctg tgga 474

<210> 89

<211> 1537

<212> DNA

<213> Homo sapiens

<400> 89

agactttgaa atcagaggaa ttccagaaga ggctgcaccc ttataaggat tttatagcta 60  
ccttgggaaa actttcagga ttacatggcc aggacctttt tggaatttgg agtaaagtct 120  
acgacctttt atattgtgag agtggtcaca atttcacttt accctcctgg gccactgagg 180  
acaccatgac taagttgaga gaattgtcag aattgtccct cctgtccctc tatggaattc 240  
acaagcagaa agagaaatct aggcctcaag ggggtgtcct ggtcaatgaa atcctcaatc 300  
acatgaagag agcaactcag ataccaagct acaaaaaact tatcatgtat tctgcgcatg 360  
acactactgt gagtggccta cagatggcgc tagatgttta caacggactc cttcctccct 420  
atgtctcttg ccacttgacg gaattgtact ttgagaaggg ggagtacttt gtggagatgt 480  
actaycggaa tgagacgcag cagagccgt atcccctcat gctacctggc tgcagcccca 540  
gctgtcctct ggagagggtt gctgagctgg ttggccctgt gatccctcaa gactggtcca 600  
cggagtgtat gaccacaaac agccatcaag gtactgagga cagtacagat tagtgtgcac 660  
agagatctct gtagaargag tagctgccct ttctcagggc agatgatgct ttgagaacat 720  
actttggcca ttacccccag ctttgaggaa aatgggcttt ggatgattat tttatgtttt 780  
agggaccccc aacctcaggc aattcctacc tcttcacctg accctgcccc cacttgccat 840  
aaaacttagc taagttttgt tttgtttttc agcgttaatg taaaggggca gcagtgccaa 900  
aatataatca gagataaagc ttaggtcaaa gttcatagag ttcccatgaa ctatatgact 960  
ggccacacag gatcttttgt atttaaggat tctgagattt tgcttgagca ggattagata 1020  
aggctgttct ttaaattgtc gaaatggaac agatttcaaa aaaaaacccc acaatctagg 1080  
gtgggaacaa ggaaggaaaag atgtgaatag gctgatgggc aaaaaaccaa tttacccatc 1140  
agttccagcc ttctctcaag gagaggcaaa gaaaggagat acagtggaga catctggaaa 1200  
gttttctcca ctggaaaact gctactatct gtttttatat ttctgttaaa atatatgagg 1260  
ctacagaact aaaaattaaa acctctttgt gtcccttggt cctggaacat ttatgttcct 1320  
tttaaagaaa caaaaatcaa actttacaga aagatttgat gtatgtaata catatagcag 1380  
ctcttgaaat atatatatca tagcaaataa gtcactctgat gagaacaagc tatttgggca 1440  
caacacatca ggaagagag cmccacgtga wggagttyt ctagaagcty cagtgataag 1500  
agatgttgac tctaaagttg atttaaggcc aggcacg 1537

<210> 90

<211> 304

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (33)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (292)



<223> n equals a,t,g, or c

<400> 90

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tgacaccatg cctgggtaaat ttttttaatt ttnattttca gtagagacaa ggttgcgcta 60
tggtgcccgg gctgggtatgg aactcctgtg cttaagcggg cctcatgcct cggcttccca 120
aagtgcgtgag gttgcagcta tgagccaccg caccagcctt acattccttc ttatcaccga 180
gaaacagggt gatcttcaca ggtgtaatga gtatgaaggg agtgccataa agatattttt 240
tattttttat ttatttattt ttttaatttaa tttttttttt tttgggatgg gngtcttgct 300
ctgg                                     304
```

<210> 91

<211> 369

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (46)

<223> n equals a,t,g, or c

<400> 91

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ggtagagatg gggctctgct atgttgacca ggctggctct aatctnctgg tctcaggcca 60
tccttccacc tcattctccc caagaactgg gattacaggc atgagcaact gcacctggct 120
catatgcttc ttatagttga agaagtgaag ggtcaatgac ttactaaaa tactattaaa 180
gtaataaagc taggacttag cccaattat tcatecttaa agtccaatac tttcaatata 240
ttaagttgct ctttattata tgaattctaa atatcttttt taccttttgt tatctaattc 300
ggaaatccta tataaatgta taattttata catgctgact gatatccyct ctagtcttgc 360
tatactagg                                     369
```

<210> 92

<211> 315

<212> DNA

<213> Homo sapiens

<400> 92

```
gctttttacc ctctccaaac cttctaacc tagcttcatg aatttatgtt actcgccatg 60
agggtctctc ataaatatat acatttgtaa cttctgttta atataaataa atcattcttc 120
atagcaagga ttctggcatc agttggagat tctttggatg gatgtgctcc catggagtgt 180
ctattttaat gtactaacia cttatgactc gtctatctgt agtatcaatt atatccacta 240
tcacagtaac agtcaccact taatatgyat agratatctc attttaccac gcaattatgg 300
tatctctgat ttata                                     315
```

<210> 93

<211> 701

<212> DNA

<213> Homo sapiens

<400> 93

```
aacattacaa gggcttttat aaaaaaccct ttgttcatat ttcttccctt taaaatatgt 60
aatgtcaaaa atgactcacc ttttaaaaaat tatgcatgaa aacaggtggg aaacattcag 120
taatacgcta tttctccaac atcaagacaa ctaaaacaaa tgataaaaaat gtttattttt 180
```

```

acactccagc atatcgggtg agtttttagg atgtgtatga atatttaa at ttttaattt 240
cagttttaat gaaagctgaa cttaatagg aaagctagct cttggtaact agcaatgatc 300
aggcattgtt tgcctctgtc aggttttctt atctgtttta ggtacatttt ttcagattct 360
gattgtttga gttaatgggt gaatttttaa agtttttagt tacttaaaat akgattttta 420
attrcatatt aatttagaaa attcctgtgt ttacttatat tttaaattgt gaaatggatc 480
caatcattag aacagagaga atagtctttt gaaactgaaa tacttttagt ttactgacct 540
tgtgtaaaga taatatgaag aaccagcttc caaaagaaac cagcatatgg cactataaac 600
tatttcattt gagcaccatt ctttaccatg gatataatga ttatgtatta tagtggagtg 660
atcatacagk tcccccaaat gtgatgggtc aagggaattt a 701

```

&lt;210&gt; 94

&lt;211&gt; 459

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 94

```

cgggcaactc tctggcatcc ttaatatctt tctatagaaa ttgtgatgaa agaacagata 60
agcctaagta aatctagcgt gtggagctcc tttaaaatgt gaagaccttg ccawctgggt 120
aaaaataaaa cttgggtttt tcttaaatat ccttgctggg cctattatac ataaaaaaag 180
gggccacagc ccatttgcaa ggcttctgaa tgaactccat tcattctgta cttggaaatg 240
tctcttcagc cacaaaaaga acaatagtta taacctaat tctttgggtc catatcagca 300
gaagaagagc caagagacca ttatgaaaac tctagtaagt tctcttggtg attatataat 360
gctgtawtca ttgatcatat tkctgtattt aaataagtac atttttttaa acatcataaa 420
gtggatcagt aatgctgtaa tatcacattt catgtatta 459

```

&lt;210&gt; 95

&lt;211&gt; 2589

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1056)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2568)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 95

```

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gaagaagcga gtcagtggcc cgttcaacct gctctgcagc tgctataaat agcctccctg 180
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gagcgttact cagtgtaca gaggatgc acacgtcccc actatgttct gtcttgagaa 300
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tggcactggg ctagagaggc accttcctgc gtgaatcctg tgcggcaggc cttattgcca 420
taataagtca catcaaagac actgctggtc ataaaacact gttttacata ccatagggaa 480
aaacgctgcc aatcttaact aagatgctac aactgtacag ttccttccaa tcagagatgt 540
tcacgtgtga aaaaaaaact gtgctactta caatctatga aagctggttt tatcccactt 600

```

ggcaggtaag ggaactgagg tcctgtgagt gaagtgaacct catgatcaca caacaggaga 660  
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tggctccaag tcccaggaag ctcgagactg tgagttttct cccctgaaac tcacctggag 780  
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agggaattc 2589

<210> 96

<211> 457

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (372)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (384)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (442)

<223> n equals a,t,g, or c

<400> 96

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ggggctgttg gwgactctgc ctacagcacg gggcrtgtgt ccaggctgar cccgctgagc 180
gtcgacacag tcgctgttgg cctgggtgtcc agcgtggttg tctatcccgt ctacctggcc 240
atsctctttc tcttcyggat gtcccggagc aaggttatca atactctggc tgaccatcgt 300
catcgtggga ctgacttttg tggaagtcct tggttactta tcattaactg tgtttctgag 360
aagttataaa tntggcatct cctnctgcac aacttacctt tgggttataa taatctggtg 420
accatcgtca cgttggactg antttggggg aagcctt 457
```

<210> 97

<211> 516

<212> DNA

<213> Homo sapiens

<400> 97

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attgtgggca tgagctgctg tgcccagcct ccatgtttta atatcaactc tctctctga 180
attcagttgc tttgcccagg ataggagttc tctgatgcag aaattattgg gctcttttag 240
ggtaagaagt ttgtgtcttt gtctggccac atcttgacta ggtattgtct actctgaaga 300
cctttaatgg cttccctctt tcatctcctg agtatgtaac ttgcaatggg cagctatcca 360
gtgacttggt ctgagtaagt gtgttcatta atgtttatct agctctgaag caagagtgat 420
atactccagg acttagaata gtgcctaaag tgctgcagcc aaagacagag cggaactatg 480
amaagctctc ctgccatctc caagccact tttcag 516
```

<210> 98

<211> 314

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (263)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (271)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (299)

<223> n equals a,t,g, or c

<400> 98

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gttgcggaag ggccacgcgt ccccccagtag gagaatgact ccgattcgtg accctcagcg 120  
ccggtgcatg tcgatcttgg cccccagggc tgtgatgcag ccagccaggt ctcagggaga 180  
gggaacccag aagcctggca tgctggccaa aggagtcaag gaaacttttg agctatttac 240  
agcttgtagc aattatgtaa agnatactcc nctgaacaaa atttggagca tgtttgttnc 300  
tctctacctg attt 314

<210> 99

<211> 679

<212> DNA

<213> Homo sapiens

<400> 99

agttgttccg tgtaggctgt tgttgactct cgtatgaaag cccacgcgat ccaagtgcc 60  
tgcagggtttt ggtccagggg aaagttggtc tctgcagatg actgtaaatg actacctgga 120  
ggtcgattaa agtgcggtac tgcgggattc arccgatttc cttcttcctc tgactgccc 180  
gaaatatcag ccaaaggcca gcgttctaag gacatatgga attggctatg gataattcat 240  
atgctttcaa tcaacgaagc acatgtaatg gaattccatc tgagaagaaa aacaacttcc 300  
ttgtatcaga agatcatgga caaaaaatct taagtgtact acagaatttt agagaacaaa 360  
atgtctttta tgatttcaaa ataattatga aagatgaaat aatcccgtgt catcgttgtg 420  
tgtttagcagc atgcagtgc tttttcaggg ctatgtttga agtaaaccatg aaagaaagag 480  
atgatggaag tgttaccatt actaatttgt cctccaaggc agtaaaagca tttctcgatt 540  
atgcctatac tggaaaaaca aaaataacag atgataatgt ggaaatgttc ttccagttgt 600  
catcatttct tcaagtttcc ttcttatcca aagcttgcag tgacttttta ataaaaagta 660  
ttaatcttga aaaaaaaaaa 679

<210> 100

<211> 599

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (583)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (584)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (599)

<223> n equals a,t,g, or c

<400> 100

aattcggcac gagtctcacc cctcggagac gctcgcccga cagcatagta cttgccgccc 60  
agccacgccc gcgcgccacc accatgctag gtaacaagcg actggggctg tccggactga 120  
ccctcgccct gtccctgctc gtgtgacctg gtgcgctggc cgaggcgtag ccctccragc 180  
cggacaaccc gggcgaggac gcaccagsgg agggacatgg ccagatacta ctcrgcgtg 240

cgacactaca tcaacctcat caccaggcag agatatggaa aacgatcyag cccagagaca 300  
ctgatttcag acctcttgat gagagaaagc acagaaaatg ttcccagaac tcggcttgaa 360  
gaccctgcaa tgtggtgatg ggaaatgaga cttgctctct ggccctttcc tattttcagc 420  
ccatatttca tcgtgtaaaa cgagaatcca cccatcctac caatgcatgc agccactgtg 480  
ctgaattctg caatgttttc ctttgtcatc attgtatata tgtgtgttta aataaagtat 540  
catgcattca aaaaaaaaaa aaaaawaaaa aaaaaaaaaa acnngggggg gggcccgcn 599

<210> 101

<211> 1189

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (232)

<223> n equals a,t,g, or c

<400> 101

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gcgggaggag ataagcaagg acctcagagc cacactgaac gccttcctgt accacatggg 120  
ccaacacagc aacaaattca tgctggctct ggccagcaat ctgcctgagc agttcgactg 180  
tgccatcaac agccgcattg acgtgatggt ccacttcgac ctgccgcagc angaggagcg 240  
ggagcgctg gtgagactgc attttgacaa ctgtgttctt aagccggcca cagaaggaaa 300  
acggcgctg aagctggccc agtttgacta cgggaggaag tgctcggagg tcgctcggct 360  
gacggagggc atgtcggggc gggagatcgc tcagctggcc gtgtcctggc aggccacggc 420  
atatgcctcc aaggacgggg tcctcactga ggccatgatg gacgcctgtg tgcaagatgc 480  
tgtccagcag taccgacaga agatgcgctg gctgaaggcg gaggggcctg ggcgcggggt 540  
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cccctcctac ccctgccttg ccggcccctg cacatttagg atatgctcct ggatggggac 660  
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ccccccaggg caccctctgt ttagggcaet ggctagggag gggcaggcct ccttcctgcc 780  
cctcgagaca ctcttgagg atgcattttc cgtctggctc acagggggag ggtgaggctt 840  
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gggcccagga acccggcagg ggtgtctgag gccgccctgt cagctggccg gtccaagcct 1080  
gtggctggag ctggtgtgtg ttatctaat aaagtccac aggtgcctca aaaaaaaaaa 1140  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1189

<210> 102

<211> 251

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (42)

<223> n equals a,t,g, or c

<400> 102

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agcttcgatg atgaagaatc agtggatgga aataggccat catcagctgc atcagccttc 120  
aagggttcctg cactaaaaca tccggaaaac ctgccaaacag tgcaaggaag ctgggttcagc 180  
agggtggccct aagggttkgag gttstaaatc catttcaatc tgttatgctg gtccatggcc 240  
ttgatattgg c 251

<210> 103

<211> 458

<212> DNA

<213> Homo sapiens

<400> 103

gggagggttt ctgaattatg ggggcaacat ggggagactg ggctttctgt ggaccatgac 60  
agctccgcag ccgtgctggg ctccctcagct ccactgtcag ggctaggaat tggccacaga 120  
acccccagag ccaaccctgg ggcccactag gacccccaaac acctgtgttt tcattctgcg 180  
tggcctcctg gttccctgga gttctttttt atgctgcctc tgggtgtgagg tcctcagcat 240  
ttaatttggt ctaagtttaa aagctgcaag agcaaaacag aacccccaaa gcctggggcc 300  
cacagctgct gcggctgac agagatacga cccagagga ccacgtccac cargggccgg 360  
atggacagcc acctattttg tamtccttgt ttcaaaagca acaatagcaa ataacattcc 420  
aaaagttcta tgatragact tcaagacact aggattta 458

<210> 104

<211> 439

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (402)

<223> n equals a,t,g, or c

<400> 104

tgtgtgtccg cgcaggcgag caccgcgccg gccctgagcc tcccgtctgc tccccacggc 60  
cgcggtgcat gttcgctcc tgccactgtg tgccgagagg caggaggacc atgaaaatga 120  
tccactttcg gagtccagc gtcaratcgc tcagccggag atgagatgca ccatccggct 180  
gctggacgac tcggagatct cctgccacat ccagagggaa accaaagggc agttttctcat 240  
tgaccacatc tgcaactact acagcctgct ggagaaggac tactttggca ttcgctatgt 300  
ggacccagag aagcaaaggc actgggcttg aacctaacaa gtccatcttc aagcaaatgn 360  
aaactcatcc accatacacc atgtgcttta gagtgaattt anccacatga acccttgaag 420  
attaaagaag actcacaag 439

<210> 105

<211> 233

<212> DNA

<213> Homo sapiens

<400> 105

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tcccaaagtg tggggattat aggcattgagc cactatgccc agcctacttt tgtttttaag 60
aaattgaaac gatatagaaa agtacaaaga acaacctaat aaacactcat attcccacca 120
ctcagaatta tcaacttttt atcattttat catatttgct tcagatcttt ttttttttta 180
aagaaaagta taacagattt agctaaagta ccctttgacc aatacccac ccc 233
```

&lt;210&gt; 106

&lt;211&gt; 704

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (704)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 106

```
ggcagcgggtg gccgaggcct cttggttctg cggcacgtga cggtcggggc gcctccgcct 60
ctctctttac tgcggcgcgg ggcaagggtg gcgggcgggg aggggcacgg gcacccccgc 120
ggtccycggg aggctagaga tcatggaagg gaagtgggtg ctgtgtatgt tactgggtgct 180
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tgaccttgac gatgtcattg aagaggtaga agactcaaaa ccagatacca ctgctcctcc 300
ttcatctccc aaggttactt acaaagctcc agttccaaca ggggaagtat attttgctga 360
ttcttttgac agaggaaactc tgtcagggtg gattttatcc aaagccaaga aagacgatac 420
cgatgatgaa attgccaaat atgatggaaa gtgggaggtg gaggaatga aggagtcaaa 480
gcttccaggt gataaaggac ttgtgttgat gtctcggggc aagcatcatg ccattctctgc 540
taaactgaac aagcccttcc tgtttgacac caagcctctc attgkctagt atgaggktaa 600
tttccaaaat ggaatagaat gtggtggtgc ctatgtgaaa ctgctttcta aaacaccaga 660
actyaamctg gatmakgtts agaggactat aaactgcctt catn 704
```

&lt;210&gt; 107

&lt;211&gt; 445

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (426)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 107

```
ggaatacccc ctcaacttctg tggcttcttt cctgtagtag acgatcaagg gtggaatcta 60
cagtccatgg gccctgactt cttgccttcg tctcaaatag actctgcagc cagccatcta 120
tgcagcggcc cagtggcttt gaaatgcaac agaaaccatc acccccggac catgggctcc 180
atgccagtgg gcaaagcaca ggtgcgttca ctgagttccc agcacatagc tgtggcaggc 240
acttggtgat attttgaaat aaaagaatgg aagaatgtgt ccaagctgtg cttccccctt 300
ctaccttact cagggacatg gtgccctcct ctctggttyc ctgccctgtg ccamcccccg 360
scccctgcaa gcacagytct tatgtgcaaa gccctgtaa gtgctggagg gattactgat 420
ggcttngggg aagtggcaat gggat 445
```

&lt;210&gt; 108

&lt;211&gt; 592



<212> DNA

<213> Homo sapiens

<400> 108

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accaaaactg cacaaagata gaaacagggg cttctgtgct ccttgagctt cacgtgttaa 60
cctgggtccc cagaccaaaag accaacaccg caggggtgagt tcatcctctg ccaacagcaa 120
tctttccctt cctctgaggc cagccatccc catcccagga ggcaggggaa gcaagcccgg 180
ggagggcagg agagctccca gctcagttaa gcagctccac cggccccgaa gcacctccct 240
tgctcacagc tcrgasccca gcttctccct gctgcmaagr taactgcagc yttcagactg 300
acttccatgc ccctctagct agggscctac acttcaagtt caggcgccaa aaaccaagaa 360
agtaaatcac acttcataga ctttattttac cttaaaaaat tcctgagttc attcatgtct 420
ccaaaccact agagaacctg aaaattcacc aggaaattgg gcaactgcaa gttatcctgg 480
agactccaga gtcaaacactt cattaatatga gaacaatctg gttcatgcgt tgaagctgtt 540
acagtaatca gggcgacatg ggcaggggaa gcgatttttc tgaagctgtg cc 592
```

<210> 109

<211> 381

<212> DNA

<213> Homo sapiens

<400> 109

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tcaccttgta gagaagaaaag tcaacagata atttctaaat tggaaaatca ggaaattaca 60
gtcattataa gagatatatg gggaggatat aaataccaga ataaaaagat aaaagagatg 120
aaaatagtag tctctgggga gctaaagtct aaaatacaaa ggtgtgaggc agaccttata 180
tactacttaa cttgtatact atttatagcc cagtattctg ttttctagac ctgtccaggt 240
gttaagggat ccaatctatg aaccagcaga gacccaatga ctaaagmcaa actttgctgc 300
acactgaaat cacctggggg aatcttttaa aaagtactga cgcctgactc ccaccacaaa 360
acagtctgat ttaattgggc a 381
```

<210> 110

<211> 351

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (253)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (322)

<223> n equals a,t,g, or c

<400> 110

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ctgtccctgc actccgtggc ggaaggcggc tagagcggct ccctctgagc tctccgagag 60
attggtcggg acctgaagcg ttgaggttaa gggcaaggca aggagcaacg aggagttttt 120
cgttacgtta gaaaaatttc gttgcgtgct gaaagcgcct ttacctgtgt tgtatgattt 180
aaccttatga aaatggacag tatttccagt ttacaagtg aggaaagaag attaagaaac 240
ttgcctccgc cangcgtggt ggttcactcc ctgtaatccc agcactttcg gcggccgaag 300
caagcggatc acttgaggtc angagttcga agaccagcct gggccaaaca t 351
```

<210> 111  
<211> 1583  
<212> DNA  
<213> Homo sapiens

<400> 111

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gggggcccga ggagatgacg gccggcgccc aggccgaggg cgagggcgct ggcggggagc 60
ccggcgcgcc gcggctgccc tcgcggtggg cccggctgct gtcggcgctc ttctacggga 120
cctgctcctt cctcatcgct cttgtcaaca aggcgctgct gaccacctac ggtttcccgt 180
caccaatttt ccttggaatt ggacagatgg cagccaccat aatgatacta tatgtgtcca 240
agctaaacaa aatcattcac ttccctgatt ttgataagaa aattcctgta aagctgtttc 300
ctcwgcctct cctctacgtt ggaaaccaca taagtggatt atcaagcaca agtaaattaa 360
gcctaccgat gttcaccgtg ctccaggaaat tcaccattcc acttacctta cttctggaaa 420
ccatcatact tgggaagcag tattcaactca acatcatcct cagtgtcttt gccattattc 480
tcggggcttt catagcagct gggctctgacc ttgcttttaa cttagaaggc tataattttt 540
tattcctgaa tgatatcttc acagcagcaa atggagttaa taccaaacag aaaatggacc 600
caaaggagct agggaaatac ggagtacttt tctacaatgc ctgcttcatg attatcccaa 660
ctcttattat tagtgtctcc actggagacc tgcaacaggc tactgaattc aaccaatgga 720
agaatgttgt gttatccta cagtttcttc ttccctgttt tttgggggtt ctgctgatgt 780
actccacggt tctgtgcagc tattacaatt cagccctgac gacagcagtg gttggagcca 840
tcaagaatgt atccgttgcc tacattggga tattaatcgg tggagactac attttctctt 900
tgtaaactt tgtagggta aatatttgca tggcaggggg cttgagatat tcctttttta 960
cactgagcag ccagttaaaa cctaaacctg tgggtgaaga aaacatctgt ttggatttga 1020
agagctaaag agtctgcagc aggattggag actgacttgt gactgcgggc tgggggggca 1080
ttcccagtag gaatgtgaag ccagaggttt cggattcgtg acatccaccc cctgggcaag 1140
tgagagcatc tgcaaaatgc aaagagaact acctcatatg caggatgagc caatggcagt 1200
ctcaagaaat gtactcgggc gacaccttac ctgtggaaaag caaatctttt caaaataagc 1260
cactgggact cggtagggtg agccccagct gctcttctag ggacctatgg ggccttcgtg 1320
gcattctctgt gctgtgtgct ggggaggagg ttgatgtaat ggtgactctt ttctgatcag 1380
caccttgggc gtgattccca aggtcccagc caaagcaaag ggccagttgt ttcagtttaa 1440
acagacatgt ctttagtcta ataaaattag ttaactgcca gtaaagttat ttgttagctt 1500
tgatgaaaagc tatgttggtg tctttcccta atcatcaaag taaataaaaa atcatttcta 1560
aaaaaaaaaa aaaaaaactc tga                                     1583
```

<210> 112  
<211> 431  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (388)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (408)  
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (422)

<223> n equals a,t,g, or c

<400> 112

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ccggcagcta gagcagctac tgactctggt tcagccatct tcgataaagg caaaaaggta 60
agggaaagt tccaagcttt aggaagaatt attttttttc aagacgctgt cttccgtact 120
ttcgttatta aacatacggc tcaagtgatc accggtatag acagtgacat cagacatctt 180
tcattagccc tactcaaaaa tggcggcaac gtaatatcct gggccggagt cggttgtaac 240
ccggaagtgc ctttgtaaag gaggggtggt tagacaatcc ggaartggat ggaatgaaga 300
gatgacctt ggcggcccat ggcagctggt agtatcggcg actccgggtm aaggcccgkt 360
csagttgcat taccatgggg cagcaccngg ttttaggggc agggacantt ttgttggtca 420
anttgtgct g 431
```

<210> 113

<211> 2842

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2040)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2603)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2656)

<223> n equals a,t,g, or c

<400> 113

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ggtggactcg gagtccgcga gcgtcgtcgg caagcggccg cctttccacg gtactccgag 60
cactatgtcg tccccggcgt cgaccccgag ccgccgcggc agccggcggtg gaagggccac 120
ccccgcccag acgcctcgga gtgaggatgc caggtcacat ccctctcaga gacgtagagg 180
cgaggattcc acctccacgg gggagttgca gccgatgcc aacctgcctg gagtggacct 240
gcagagccct gctgcgcagr rcgtgctggt ttccagccct ccccaaattgc attcttcagc 300
tatccctctt gactttgatg ttagttcacc actgacatac ggcactccca gctctcgggt 360
agagggaacc ccaagaagtg gtgttagggg cacacctgtg agacagaggg ctgacctggg 420
ctctgcacag aagggcctgc aagtggatct gcagtctgac ggggcagcag cagaagatat 480
agtggcaagt gacgagcttc taggccaaaa acttgatgatc tggggaacag atgtaaatgt 540
ggcagcatgc aaagaaaact ttcagagatt tcttcagcgt tttattgacc ctctggctaa 600
agaagaagaa aatgttgcca tagatattac tgaacctcta tacatgcaac gacttgggga 660
gattaatgtt attggtgagc cattttttaa tgtgaactgt gaacacatca aatcatttga 720
caaaaatttg tacagacaac tcatctctta cccacaggaa gttattccaa cttttgacat 780
ggctgtcaat gaaatcttct ttgaccgtta ccctgactca atcttagaac atcagattca 840
agtaagacca ttcaacgcat tgaagactaa gaatatgaga aacctgaatc cagaagacat 900
tgaccagctc atcaccatca gcggcatggt gatcaggaca tcccagctga ttcccagat 960
```

```

gcaggaggcc ttcttccagt gccaaagtgtg tgcccacacg acccgggtgg agatggaccg 1020
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catccacaac cgtccctct tctctgacaa gcagatgata aagcttcagg agtctccgga 1140
agacatgcct gcagggcaga caccacacac agttatcctg tttgtctaca atgatctcgt 1200
tgacaaggct cagcctgggg acagagtga tggttacaggc atctatcgag ctgtgcctat 1260
tcgagtcaat ccaagagtga gtaatgtgaa gtctgtctac aaaaccaca ttgatgtcat 1320
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acttttttca gagaaacgtg tgggaattgct taaggaaact tccaggaaac cagacattta 1440
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aattttgctt cagctctttg gcgggacaag gaaggatttt agtcacactg gaaggggcaa 1560
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gcatcgtgga catatctatt ctactacgg ggatgagtgc cacctctcgt aaacggaaag 2460
aagaattagc tgaagcattg aaaaagctta ttttatctaa gggcaaaaca ccagctctaa 2520
aataccagca actttttgaa gatattcggg gacaatctga catagcaatt actaaagata 2580
tgtttgaaaga agcactgcgt ccnctggcag wtgatgattt cctgacagtg actgggaaga 2640
ccstgcgctt gctctngaag ccttgtagc aaggaaggct ccctgcatgt cctgcttgct 2700
gcacgccaca tgggtgtggt ctgcatctca gttggccgcc atcagtgtaa atagagctta 2760
aagtcatggt ttggctgcat aaaaattttc taacttgggt tcaatatttg tagtgaagta 2820
tctgttttca tttttttcac gt 2842

```

&lt;210&gt; 114

&lt;211&gt; 268

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 114

```

attttgctgc tgggtgggtg ggctacagca ggctcttga gccacaccag ggcacgggag 60
tgggtgcagg gaccgtcacc gcgccttcac acgcaccata gtgcccggct aattactctg 120
cttttatgag ccaaggtgtt cccgaaagtg garccagcgc cacgcgtctc yaaggtctcc 180
ataccagcc ttcgtccctg cgggtgccccaa aagccttgcg cgcattttgc atttgggaaa 240
aaaagtcctg aatgcgaacg tcacccca 268

```

&lt;210&gt; 115

&lt;211&gt; 800

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature  
<222> (673)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (794)  
<223> n equals a,t,g, or c

<400> 115  
gcgtcggggc ttcggaggcg tgcgggcttc ggaggcgtgc gggcttcgga ggcgwgcggg 60  
cttcggaggc gtgcgggctt cgggtgccat ggggactcct cccggcctgc agaccgactg 120  
cgaggcgtc ctcagccgct tccaggagac ggacagtgtc cgcttcgagg acttcacgga 180  
gctctggaga aacatgaagt tcgggactat cttctgtggc agaagagaa atttagaaaa 240  
gaacatgttt acaaaagaag ctttagcttt ggcttggcga tattttttac ctccatacac 300  
cttccagatc agagttggtg ctttgtatct gctatatgga ttatataata cccaactgtg 360  
tcaacaaaaa caaaagatca gagttgccct gaaggattgg gatgaagttt taaaatttca 420  
gcaagattta gtaaattgcac agcattttga tgcagcttat attttttagga agctacgact 480  
agacagagca tttcacttta cagcaatgcc caaattgctg tcatatagga tgaagaaaaa 540  
aattcaccga gctgaagtta cagaagaatt taaggacca agtgatcgtg tgatgaaact 600  
tatcacttct gatgkattar aggaaatgct gaatggtcac gatcattatc agaacatgaa 660  
catgtaattc agntgataaa gtccaagcca gataaggcct taacttgata aaggatgatt 720  
tttttgacaa tattaagaac atagtttttg agcatcagca gtggcccaaa gaccgaagaa 780  
tccatcctta agncaaaac 800

<210> 116  
<211> 646  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (556)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (592)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (615)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (645)  
<223> n equals a,t,g, or c

<400> 116

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aacaaaggca ttgccatcta caagaaggat ttcttcctgg tgcagaagct ggtgagctgg 60
gctctgtttc agggcaaatg agggccagga gctgcctgtg tgactttggg gctccctctg 120
ccagtgacca atccctctta aaaagcagtc aggtcaatgc tactgagtag cctcagagag 180
aatttcctaa acaatacaag aaagagaaa ataggtctct tttccctttt ggttctaagc 240
atcctttcct cacttcaggg taggggtggc aagctctggg gtctcaatcc agaaggaggc 300
ctaagtgggc atcagactta aaataggcag gaggaagatg cggaggaggg tggcaaktag 360
aggtgagcca ttccccagag gaagatgcag ggggagggca ccctgggggtg aaggccactg 420
agagccagca agtgccctgc gactgacctg ggggcctctg cccacttcct ttgaccaga 480
gttgcccttc agtaactcag ctgttcaagc ccacattccc taagatttat cttgtcctct 540
ctcccatatt cttctnggaa aagcagatgc tttgctaata ccaaggaatt gnattttttc 600
cagccctggt ttcanaaaat ctggggcttt ggggaaaaaa aattnt 646

```

&lt;210&gt; 117

&lt;211&gt; 1534

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 117

```

gcgacctcgg ccataagcgc ctgcgcagtc gcggggcccgc cggccgtgct gttccccgcca 60
attcctgtgg taatccttac cgtggcgagt tccgcgctca atggagacgt ttgacccac 120
cgagctgccc gagctgctta aactttatta cggaggctc tttccctact ctcagtacta 180
tcgtggctc aactacggtg gagtataaa gaattacttt caacaccgtg aattttcatt 240
cacattgaaa gatgatattt acattcgcta ccaatccttc aacaaccaga gtgatctgga 300
aaaggagatg cagaaaatga atccatacaa gattgatata ggcgagatg attctcacag 360
acccaatcaa cacaatacag tgaagctggg agctttccag gctcaggaaa aagaactgg 420
atttgacatt gacatgacag actatgacga tgtgaggaga tgtttagatt ctgcagacat 480
atgtcctaag tgctggaccc tcatgacaat ggccatacgc atcattgaca gagcattgaa 540
ggaggacttt ggatttaagc atcgtctctg ggtatattct ggaaggagag gtgttcattg 600
ttgggtctgt gatgaatcag ttagaaactg tcttctgcar tacgttcygg gatagttgag 660
tatttgagcc ttgtaaaggg tggtaagac gttaaaaaga aagttcacct aagtgaataa 720
attcaccctt ttatcagaaa atctataaac ataataaaaa aatactttga agaataatgcy 780
ttggttaatc aagatattct cgaaaataaa gaaagctggg ataagatttt agcccttg 840
ctgaaacaat tcatgatgaa cttcaacaaa gcttccaaaa gtctcacaat tcaacttcagc 900
gttgggagca cttgaagaaa gtagccagca gatatcagaa taacatcaaa aatgacaaat 960
atggaccctg gctggagtgg gagattatgc tccagtactg ttttccacgg ctggatatca 1020
atgtcagcaa aggaatcaat catctactga agagccctt tagtgttcat cctaaaacag 1080
gtcgcatttc tgtgcctatt gatttgcaga aagtggacca gtttgatcca tttactgttc 1140
cgaccataag cttcatctgc cgtgaattgg atgccatttc cactaatgaa gaggaaaaag 1200
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attgtggata tcttctgcct tcaaccacag atcaaatact tcaagagcca ttttaataaat 1440
atggcagaac tatatatgtg tcttaaacct caaagtaaat tttccttgag aaataaaaaa 1500
aaaaaaaaa aaaaaagtcg agactagtct tctc 1534

```

&lt;210&gt; 118

&lt;211&gt; 339

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature  
<222> (155)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (307)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (333)  
<223> n equals a,t,g, or c

<400> 118  
tagatgaaga taatgaaaaa gaaaaaaggg actcttttagg caatgaagaa tctgttgata 60  
aaacagcatg tgaatgtgta aggagtccaa gggagtcttt ggatgacctg tttcaaatat 120  
gttctccatg cgccattgca agtgggtcttc ggaanacctg gctgaattga caacattatg 180  
tttgagattg aatgtattga attctaagat caaaaagcacc agtggracat gtgggaccac 240  
actttgccaa cagtaactct cctgaaattc tgggcttgcc atttccctga aagaagtact 300  
tttttontcc ggaacttgga aaagagcgaa ggnagagta 339

<210> 119  
<211> 665  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (616)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (656)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (665)  
<223> n equals a,t,g, or c

<400> 119  
aaagagtgtc cctagttgta acagaaactg tcgatgcagg tttatttgga gaaggaattg 60  
tggagagttt gattcatgca tgggagcatt tactttttaca gccaaagacc aaaggtgaaa 120  
gtgctaattg tgaaaagtat gggaaagtta taccagcaag tgctgttata tttgggatgg 180  
cagtagaatg tgcagagata agaagacatc atagagtggg tattaaggac attgctggta 240  
tccatttgcc aacaaatgtg aaatttcaga gtccggctta ttcttctgta gatactgaag 300  
aaacaattga accttataca actgaaaaga tgagtcgagt tcctggmggr tatttggtt 360  
tgacagagtg ctttgaaatt atgasagtag atttcaacaa ycttcaggaa ttaaaaagtc 420  
ttgcaactaa raarcctggt aaaattggta ttctgttat taaagaaggc atattagatg 480

ctgttggtggt ttggtttgta ctccagcttg atgatgaaca tagtttatcc acaagtccta 540  
atgaggaaac atgttgggaa caagctgtct accctgtaca tgaccttgca gactaccgga 600  
taaaacgtgg ggaccngtga tgatggaatg tcttgtccaa gattgttact taagantcca 660  
gaatn 665

<210> 120  
<211> 622  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (544)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (577)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (603)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (614)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (620)  
<223> n equals a,t,g, or c

<400> 120  
gagggctgcg ggaggcggga ggaaaaagtg gggccggggc tgagttgggc tgacctgtga 60  
aagtctggga aggtctgcga gagaagcggg gtgttttcag ctccggaagt ggcagttgta 120  
aacttcacct cccgggggct cttccccttc tgtaccctt tgetgtttgt cccctcctc 180  
ccgggtcctg gagtccgtcg tgtccaaca gtttttgctc ttattcccggt gggctgctgg 240  
gcctcctttc acccgtgaga cttggarcgg ccctggggtc ttgggtgtca agcacggatc 300  
acgcgagacc cctgagacct caaatcatct aacgtgaagc cacagacatc ttggcaattt 360  
taatcatcaa gaaagaaata tgtcatthaag aaatagcagg gtattttgaa agaagttgga 420  
aaacatcatg aatttgaata ctttaagtaa tactggtgat acccaaagggt tgaagattgc 480  
ctcattggat gtaaaacaaa tacttaaaaa tgaaacagag ttggatatta ctggataatc 540  
tcangaagaa actccattgg gctaataaaa aaaagtntga aataccacca accccatgga 600  
aancttgcaa gctntgaagn ca 622

<210> 121  
<211> 889  
<212> DNA



<213> Homo sapiens

<220>

<221> misc feature

<222> (817)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (830)

<223> n equals a,t,g, or c

<400> 121

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tttaatggag gttacagtgg atagaaactg cctagagggtt cttccaacaa aaatgtctta 180
tgctgccaat ctgaaaaatg taatgaacat gcaaaaccgg caaaaaaaag aaggggaaga 240
acagcccgtg ctgccagaag aaactgagag ttcaaaacca gggccatctg ctcgatgatct 300
tgctgcacaa ttaaaaagta gcttactagc agaaatagga cttactgaaa gtgaagggcc 360
acctctcaca tctttcaggc cacagtgtag ctttatggga atgggtattt cccatgatat 420
gctgctagga cgttggcgcc tttctttaga actgttcggc aggggtattca tggaagatgt 480
tgagagcagaa cctggatcaa tcctaactga attgggtggt tttgaggtaa aagaatcaaa 540
attccgcaga gaaatggaaa aactgagaaa ccagcagtc aagagatttgt cactagaggt 600
tgatcgggat cgagatcttc tcattcagca gactatgagg cagcttaaca atcacttttg 660
tcgaagatgt gctactacac caatggctgt acacagagta aaagtcacat ttaaggatga 720
gccaggarar ggcagtgggt tagcacgaag tttttataca gccattgcmc aagcattttt 780
atcaaatgaa aaattgccma atctagagtg tatcccnaaa aaaaaatttn ggcccccca 840
aaaacccaaa aaaaaggggc caacccccaa ccaccaaagg gtttttttaa 889
```

<210> 122

<211> 132

<212> DNA

<213> Homo sapiens

<400> 122

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cttgagcccc tgagttgtgg gggtaggggtg aagagcatat cccacaagag gccccacagg 60
gagcagagac tgctttaatc cctgctgaca tcacggaaaa gcaacagagc cttttcaact 120
ttgtcactat gt 132
```

<210> 123

<211> 1900

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1879)

<223> n equals a,t,g, or c

<400> 123

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gcggacgcnt gggaaacagc cgattggaga cgggagccaa ccagggctgc attggaggtt 60
gaaatcacaa agattagaca cttttttaga taggtgttct tcagcaccac tgacaacacg 120
gttctgacag tatttcatga caatggatgg tgacagttct acaacagatg cttctcaact 180
aggaatctct gcagactata ttggaggaag tcattatgtt atacagcctc atgatgatac 240
tgaggacagc atgaatgatc atgaagacac aaatggttca aaagaaagt tccagagaaca 300
agatatatat cttccaatag caaacgtggc taggataatg aaaaatgcc aacctcaaac 360
gggaaagatt gcaaaagatg ccaaagaatg tgttcaagaa tgtgtaagt agttcatcag 420
ttttataaca tctgaagcaa gtgaaaggtg ccatcaagag aaacggaaaa caatcaatgg 480
agaagatatt ctctttgcta tgtctacttt aggctttgac agttatgtgg aacctctgaa 540
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aaatttgagt ttgtcttggg tataccttgc atgataacct agctagattt ctagcatttg 1260
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aacttggtgc ccattaacag tgtttacact gttcatcgtg cctgttaatg tagttttagt 1440
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atatttaagt ttaatgtagt cctagtgtc ttgaaatggg gcccctttca tttggtacat 1560
gatttttttt caaatcatat cttcaagtac tatagtattc tcttacagaa gaggagtttt 1620
atagtctgat ggtaaatgtc ttcattttac ctttttaatt gaaatgtcaa gtttcctgtt 1680
acactatgga aaccaagaaa catcagacat cattgcgtgt acagaccttt tgcattgggtg 1740
agtggatgaa atggagaaca gagtgagtgc tgtgaacggg gtgaaataga agccaacttc 1800
tagtatgctg tcttcatctc tgcaataaac taaacgtaaa taawrwaaaa aaaaaaaaaa 1860
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1900
```

<210> 124

<211> 1250

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (874)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1169)

<223> n equals a,t,g, or c

&lt;400&gt; 124

```
ggcacgagga ggaaactaac gattccctgc ccacccccac acccagcacc accaacaggt 60
gggcaagctt gccgagaaaa cgcagagggc atcctgtgag cagcaaacac atctgagcct 120
ggaaaagacg cagagaagta aaagatcaaa gtctgattgg caccggctcc cattccggct 180
ccagcctcca atccgacccc catttcggct gcagcctcgg acctagctcc ggccctcggg 240
ctatccgggt gcacccctcc tccctgttcc ggatcctatc ttgcgccagc gcctactcca 300
ggatcccgtg gcccagacctc aagccatggc tgggtccctc tcccgtctgc tgtccgcccc 360
cccgggactc aggctcctgg ctttgggcgg agcgggggtc ctagccgctg ggtttctgct 420
ccgaccggaa cctgtacgag ctgccagtga acgacggagg ctgtatcccc cgagcgctga 480
gtacccagac ctccgaaagc acaacaactg catggccagt cacctgacct cagcagtcta 540
tgcacggctc tgcgacaaga ccacaccac tggttggacg ctagatcagt gtatccagac 600
tggcgtggac aaccctggcc accccttcat caagactgtg ggcatgggtg ctggagatga 660
ggagacctat gaggtatttg ctgacctgtt tgaccctgtg atccaagagc gacacaatgg 720
atatgacccc cggacaatga agcacaccac ggatctagat gccagtaaaa tccgttctgg 780
ctactttgat gagaggatg tattgtcctc tagagtcaga actggccgaa gcatccgagg 840
actcagtctg cctccagctt gcactcgagc agancgacga gaggtggaac gtgttggtgt 900
ggatgcactg agtggcctga agggtgacct ggctggacgt tactataggc tcagtggagt 960
gacagaggct gaacagcagc agcttattga tgaccacttt ctgtttgata agcctgtgtc 1020
cccgttgctg actgcagcag gaatggctcg agactggcca gatgctcgtg gaatttggca 1080
caacaatgag aagagcttcc tgatctgggt gaatgaggag gatcatacac gggatgatctc 1140
catggagaag ggtggttaaca tgaagagant gtttgaaaga tctgccgagg cctcaaagag 1200
gtrgagagac tatgtagggg actaggtggg aggacataag gaaaacaaaa 1250
```

&lt;210&gt; 125

&lt;211&gt; 1189

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1041)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1136)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1144)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 125

```
cttttttttaa ccccttaggt atctgatcgc tttgccaaatt ttgcgttact gggcaggcta 60
agagatcttc ttttaattca gcctgcttaa gacgggaact gataactgta gtgtatcctc 120
tgcctttttt cttatctatt ggaggaagct cagatggtgt cacaagaagg atctgaagtg 180
gagcttctag tatccccagg agcgcgaagt gaacacggaa ggtacctgca ggatccaatt 240
gtgtccattg atctctcaga gtggctgagg ataataagat ttcttcttca aggtctcaag 300
gtctgaagca tcccacagaa tgatcctact gaataactcc cataagctgc tggccctata 360
```

```

caaatccttg gccaggagca tccctgagtc cctgaagggtg tatggctctg tgtatcacat 420
caatcacggg aacccttca acatggaggt gctgggtggat tcctggcctg aatatcagat 480
ggttattatc cggcctcaaa agcaggagat gactgatgac atggattcat acacaaacgt 540
atatcgtatg ttctccaaa agcctcaaaa atcagaagaa gttttgaaaa attgtgagat 600
cgtaaaactgg aaacagagac tccaaatcca aggtcttcaa gaaagttag gtgaggggat 660
aagagtggct acattttcaa agtcagtga agtagagcat tcgagagcac tcctcttggt 720
tacggaagat attctgaagc tcaatgcctc cagtaaaagc aagcttgga gctgggctga 780
gacaggccac ccagatgatg aatttgaaag tgaaactccc aactttaagt atgccagct 840
ggatgtctct tattctgggc tggtaaatga caactggaag cgagggaaga atgagaggag 900
cctgcattac atcaagcgt gcatagaaga cctgccagca gcctgtatgc tcggcccaga 960
ggagatcccc gtctcatggg taaccatggg acccttcttg tgaagtagga atggcctaca 1020
gcatggaaaa ataccgaaga ncaggcaaca tgggcacgag tgatgggtgcg atacatggaa 1080
atatctgcgt cagaaggaa atttccattt ttacatctct gtgttgaggaa ggaaantgaa 1140
ggantccccg cagatttgtg gggggcagtt ttggtttctt ttgaggcct 1189

```

<210> 126

<211> 428

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (388)

<223> n equals a,t,g, or c

<400> 126

```

gaggtcctga gagactgtra gagccccaac tccattagta ttatgggcct caatacttcc 60
cgggttgcaa ttaccctgaa gcccgaagac cctatggaac agaacgtagc tgagctgttg 120
cagttcctgc tgggtgaagga tcagagcaag taccctatcc gggagtctga aatgcgggaa 180
tatattgtta aagaatatcg caaccagttt cctgagatac tcaggcgagc agcagcccac 240
ctggagtgca ttttttaggtt tgaattgaga gaacttgacc ctgaggcaca cacctacatt 300
ctgttaaaca aactgggacc tgtgcccttt gaagggttag aagagagccc aaatgggcca 360
aagatgggcc tcctgatgat gattctangc caaatattcc tgaatggcaa ccaagccaag 420
gaggctga 428

```

<210> 127

<211> 645

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (255)

<223> n equals a,t,g, or c

<400> 127

```

acgcggtcgg ccgggagccg gggaggagcg tggacgcccg cctggcaggt acccccgcga 60
gaacgtggga gccggtgtat ttcagctgca tttattactg atctcgggct gcaccagggc 120
actttagtaga ccgcactaaa aacagcggaa agtgaggagc caagcctggg tccggggcgg 180
cccgcgtac agctggcctc acggattcca ctgcctgcgc ctgcagatga cttgttctgg 240
agagtagaga atgtntcgg atttaaagta caatccggtt tcctttccat tcattatagt 300

```

```

tgcctacact caacaaacaa aagttgggaa agataaaggg attattctag cgcgtcacat 360
tgacaaacac cgacgttaac acgctcagtc cagcctgact cacttgccctc aggtcagaga 420
ggtcaccact gacgacgccg ggccctcaag ccgatacctaa tccagcttgg ttctctcagc 480
ctcagccaga ccatccgttc ttgcctctgt cccaccacgt gcaggtgtaa gytcccgcgc 540
cactttctgt ctgaatctgc caaggaagga aactggcatc tttcagctta aattcttttt 600
cacttgatca ggggtaggag tttaggcggt tttttttttt aagga 645

```

```

<210> 128
<211> 496
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (475)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (481)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (490)
<223> n equals a,t,g, or c

```

```

<400> 128
ctggagtctc aacgacgcgc acacgagaag taaggagcgg aaggtgggaa agggccggaa 60
aacacacgtt cctccgaaac cggtttgcaa gtccttgtag agagtgatag attcgtgtgg 120
cctttcaaat gattgtgaag tgggtggaaat ggatccaaaa taataagtga cttctctacc 180
aaagcataga agattcttca tatctccttc cagtggctca atttagattt tgggaargag 240
cagaacaagt gaaacacaga aaactgaaga gaagaaatcc tcattttgga cctatatttc 300
tccttgacta tttcttaata tccatcctac ccatcgttct aatgttttaa ctttgctctg 360
aatttataaa tagtaaaggc caaagacata gaatatacat ttagtagctt tataccaaga 420
aatttgcctt gaaagctgct gtscgtggag gggaaagtgt agcaaattcc tggcnatttg 480
naattttaan ttattg 496

```

```

<210> 129
<211> 424
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (313)
<223> n equals a,t,g, or c

```

```

<400> 129
ctggcgcccg caggagcgcg tgcggcgtgg actttgccgg gctcgccaca cagccccaga 60
cccgttttagg accgggagac cgaacgcagc gwccagccgg ggagtttcgg cggcgttctc 120

```

cgggcaccgc gcgcggaagc cagacgcagc ggggggacac atctcgcggt ggcgttgcca 180  
gagtgaggag ttagcaggca ggacttgacg aggcctcttg gtttttctag tcctcaacca 240  
ctgaagaaga agcttgatgc ttggctgtca gaagacatga attacgcacg gttcatcacg 300  
gcagcgagcg cancagaaac ccttctccca tccggaccat gactgacata ttgagcagag 360  
gaccaaatac gatgatctcc ttggctgggt gcttaccaaa tccaaacatg tttcctttta 420  
agac 424

<210> 130

<211> 1709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (881)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1028)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1061)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1168)

<223> n equals a,t,g, or c

<400> 130

tggaccgcag cttcctggaa gacacaaccc ccgccaggga cgagaagaag gtggggggcca 60  
aggctgccc gacggacagc sacagtsatg gggaggccct gggcggaas ccgatggtgg 120  
carggttcca ggacgatgtg gacctcgaag accagccacg tgggagtccc ccgctgcctg 180  
caggccccgt cccagtcga gacatcactc tttcgagtga ggaggaagca gaagtggcag 240  
ctcccacaaa aggccctgcc ccagctcccc agcagtgtc agagccagag accaagtgg 300  
cctccatacc agcttcgaag ccacggaggg ggacagctcc cacgaggacc gcagcacc 360  
cctggccagg cgggtgtctct gttcgcacag gtccggagaa gcgcagcagc accaggcccc 420  
ctgctgagat ggagccgggg aagggtgagc aggcctcctc gtcggagagt gaccccgagg 480  
gacccattgc tgcacaaatg ctgtccttcg tcatggatga ccccgacttt gagagcgagg 540  
gatcagacac acagcgcagg gcggatgact ttcccgtgcg agatgacccc tccgatgtga 600  
ctgacgagga tgagggccct gccgagccgc cccaccccc caagctccct ctccccgcct 660  
tcagactgaa gaatgactcg gacctcttcg ggctggggct ggaggaggcc ggacccaagg 720  
agagcagtga ggaaggttaag gaggggcaaaa cccctctaa ggagaagaag aagaagaaga 780  
aaaaaggcaa agaggaagaa gaaaaagctg ccaagaagaa gagcaaacac aagaagagca 840  
aggacaagga ggagggcaag gaggagcggc gacggcggca ncagcggccc ccgcgcagca 900  
gggagaggac ggctgccgat gagctggagg ctttctctgg gggcgggggc cggcgggccg 960  
ccacctggg ggtggcgact acgaggagct ctaggccggc gtgggcagtg gccgccctgg 1020  
ggcggggngc gtgcctgtca ctgcctgggg aggcatttgc ntctgtacca tcgcctttgc 1080

```
cgctgccccg tggctgccgt gtgcgcttct gagctggaag aggccgggca ttggtgggtcc 1140
ccaggctggg ccctgcaggt gctgggcntt cagccyagtg tgagcctgct ctgcaagaag 1200
ggaggggaca gctggcttca gccaggctcg gtggacaccc tggccctctc ggggcagagc 1260
cgccagtggt tctcagggat gtgactgagg cccaggaggg acctgtgagg gtctgtttac 1320
agaggctggg cagggggccgc ttggctgtgg ggtgtgcgct gccccggcac ctgcttgccc 1380
tccgcgctca tctggggccg cagcatgcct atggttccgc ttccggccgg gagccctgaa 1440
cacgggtgtg cagactcacc ctaaaggggc gcccaggccc cacgctagaa ggctggcgag 1500
accgaagcag catgtgaggc ctctcctggg agtgggggtt gtgtttccca cagtggcctc 1560
agctgcgccc ccgctcaggt gagcccgaag gcaggagccg ggaggcactc ctcccaaaca 1620
ctccactcag accataaagc actcctgttt cactctgaaa aaaaaaaaaa aaaaaaaaaa 1680
aaaaagggcg ccgctcgca tctagaacc 1709
```

<210> 131

<211> 866

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (683)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (723)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (740)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (793)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (813)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (841)

<223> n equals a,t,g, or c

<400> 131

```
ctcgctcgga ttggttcagt gcactctaga aacactgctg tgggtggagaa actggacccc 60
aggtctggag cgaattccag cctgcagggc tgataagcga ggcattagtg agattgagag 120
agactttacc ccgccgtggt ggttgagggg cgcgcagtag agcagcagca caggcgcggg 180
```

```

tcccgggagg ccggtctctgc tcgcgccgag atgtggaatc tccttcacga aaccgaactcg 240
gctgtggcca ccgcgcgccg cccgcgctgg ctgtgcgctg gggcgctggg gctggcgggg 300
ggcttctttc tcctcggctt cctcttcggg tggtttataa aatcctccaa tgaagctact 360
aacattactc caaagcataa tatgaaagca tttttggatg aattgaaagc tgagaacatc 420
aagaagtctt tatataatct tacacagata ccacatttag caggaacaga aaaaaacttt 480
cagcttgcaa agcaaattca atcccagtg aaagaatttg gcctggattc tgttgagcta 540
gcacattatg atgtcctgtt gtcctaccca aataagactc atcccaacta catctcaata 600
attaatgaag atggaaatga gattttcaac acatcattat ttgaaccacc tyctycagga 660
tatgaaaatg gttcggatat tgnaccacct ttcagtgcct tctctcctca aggaatgcc 720
ganggcgatc tagtgtatgn taactagcac gaactgaaga cttcttttaa ttggracggg 780
acatgaaaat canttgctct ggggaaaatt gtnattgcc  agatatggga aagttttcaa 840
naggaaataa ggggttaaaaa tgccca 866

```

&lt;210&gt; 132

&lt;211&gt; 1593

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 132

```

gttgtagtga gctgagatca tgccactgca ctccaacctg ggtgacagag cgagactcca 60
tctcaaaaat aaataaataa ataaataaat aaaaccttaa tttgatggg gttttatgtc 120
tgccatttcc atttagattc aaagaatcct aagaataatg gtggagcaaa gcttattttt 180
ctgttttttg aatcttgtaa ggcattggtgc caaacccaat gaaatgggtc caaaaagtcc 240
tgcagctgga actagagcta gagtctaagg gttctgatcc ttagctccaa ggcttctca 300
taaatccttt gacactttca cctccaaca cagtcagtca gtctctgtt ttctggttg 360
gtttctatat aaaactttcc attttgagta atgatctttc cctcttgcc tttcttctac 420
atattccaat aaagaccttt tttgtcttca actcctgtca cttggattcc aggacttctt 480
ccatccctca tgtttgttcc ttactttgcc agcctcggcc atttctgtat cccctgcct 540
gggkttgctg ccttttatgc tctamctca ccaggtaaca ggaacatgaa gatggctata 600
tgcggctgca gctggttcgc tamgagagt tagagctgac acagcaactg ctgcggcaac 660
cacaagaggg atcgggctgg gaacgtcgt gaacgagagc agcctgcarg gsattattct 720
agaaacagtg ccaggggagc caggacgtaa ggaagaggaa gaggagggca agggtagcga 780
agggacagcc ctctcagcct ctcaggacaa ccccagttct gtcattccac tggatgaatca 840
gaccaatgcc caaggccagc aararattgt ytactatgtg ctgtctgaag ccccgaggag 900
ccttccccca gcccctgagc caccttcagg gggcatcatg gaaaagcttc aaggaatagc 960
tgaggagcca gagatccaga tggtttgaag gccgcagagc cagaccattt cttccccagg 1020
tcctgaagtt tgagccaggc aagtggcagt gcccctagtg ggcagccgtt gccaatggat 1080
gccttttagga gtggtgccga gagcagtgtg gtccactctg gcctgggttt gcatcattct 1140
gcagactcta aagacttccc tttcttgcca gactacattt tgtggggagc ctgaggactc 1200
tggattcttt gaggggatcc tggatgtgtg tgttcttgtt aaagaggctg ttatcaggct 1260
taacyataac cctcaagatc tgcttgacag tgattaaatc cttagctcac atccattccc 1320
atctttcggg ctcttaggc ccaaggatgg catgtgactg gtccctgcaa gggccctttc 1380
tttgtcacca gccaaaggcat tgataaccaa gtagccattt tcctcttaag gtttctctca 1440
caaccccaag gactttcatg attatcctca gggacaggat tggaggcatt gagcgtgttt 1500
attaacaaat tgttttttgt aataaaataa atgcttgga aaaaaaaaaa aaaaaaaaaa 1560
aaaaaaaaa aaaaaaaaaa aaaaaactcg tag 1593

```

&lt;210&gt; 133

&lt;211&gt; 408

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



<220>

<221> misc feature

<222> (381)

<223> n equals a,t,g, or c

<400> 133

```
tccttctgac gtcaatgtga tggcgggaatc gctgaaggat atggaagcag atgcgcgagaa 60
actgtaccag ttaatctggc gtcagttcgt tgcctgccag atgaccccag cgaaatatga 120
ctccacgacg ctgaccgttg gtscggggcga tttccgcctg aaagcacgcg gtcgtatttt 180
gcgttttgay ggctggacaa aagtgatgcc tgcgttgctg aaaggcgatg aagatcgcat 240
cttaccagca gttaataaaag gcgatgctct gacgctcgtt gaacttacac cagcccagca 300
ctttaccaag ccgccagccc gtttcagtga agcatcgctg gttaaagagc tggaaaaaacg 360
cggtatcggg cgtccgtcta nctatgcgtc gatcatttcg accattca 408
```

<210> 134

<211> 2741

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1673)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2736)

<223> n equals a,t,g, or c

<400> 134

```
cggcggttaag acttcgtagg gttagcgaaa ttgaggtttc ttggtattgc gcgtttctct 60
tccttgctga cyctccgaat ggccatggac tcgtcgcttc aggcccgctt gtttcccggg 120
ctcgctatca agatccaacg cagtaatggg ttaattcaca gtgccaatgt aaggactgtg 180
aacttggaaga aatcctgtgt ttcagtggaa tgggcagaag gaggtgccac aaagggcaaa 240
gagattgatt ttgatgatgt ggctgcaata aaccacagaac tcttacagct tcttccctta 300
catccgaaga caatctgccc ttgcaggaaa atgtaacaat ccagaaacaa aaacggagat 360
ccgtcaactc caaaattcct gctccaaaag aaagtcttcg aagccgctcc actcgcatgt 420
ccactgtctc agagcttcgc atcacggctc aggagaatga catggagggtg gagctgcctg 480
cagykgcaaa ctcccgaag crgttttcag ttctcttcg gaggaatca tgtcttgatga 540
aggaagtgga aaaaatgaag gaacaagcga gaagagaaga aggccagaa ytctgaawtg 600
agaatgaaga gagctcaggw gtatgacagt agttttccaa actgggaatt tgcccgaatg 660
attaaagaat ttcgggctac tttggaatgt catccactta ctatgactga tcctatcgaa 720
gagcacagaa tatgtgtctg tgtaggaaa cgcccactga ataagcaaga attggccaag 780
aaagaaattg atgtgatttc cattcctagc aagtgtctcc tcttggtaca tgaacccaag 840
ttgaaagtgg acttaacaaa gtatctggag aaccaagcat tctgctttga ctttgcat 900
gatgaaacag cttcgaatga agttgtctac aggttcacag caaggccact ggtacagaca 960
atctttgaag gtggaaaagc aacttgtttt gcatatggcc agacaggaag tggcaagaca 1020
catactatgg gcggagacct ctctgggaaa gcccagaatg catccaaagg gatctatgcc 1080
atggcctycc gggacgtctt cctcctgaag aatcaaccct gctaccggaa gttgggcctg 1140
gaagtctatg tgacattctt cgagatctac aatgggaagc tgtttgacct gctcaacaag 1200
```

```

aaggccaagc tgcgcgtgct ggaggacggc aagcaacagg tgcaagtggg ggggctgcag 1260
gagcatctgg ttaactctgc tgatgatgtc atcaagatgm tcgacatggg cagcgcctgc 1320
agaacctctg ggcagacatt tgccaactcc aattcctccc gctcccacgc gtgcttccaa 1380
attattcttc gagctaaagg gagaatgcat ggcaagtctt ctttggtaga tctggcaggg 1440
aatgagcgag gcgcrkacac ttccagtgtc gaccggcaga cccgcatgga gggcgagaa 1500
atcaacaaga gtctcttagc cctgaaggag tgcatacagg ccctgggaca gaacaaggct 1560
cacaccccggt tccgtgagag caagctgaca caggtgctga gggactcctt cattggggag 1620
aactctagga cttgcatgat tgccacgata tcaccaggca taagctcctg tgnaatatac 1680
tttaaacacc ctgagatatg cagacagggg caaggagctg agccccaca gtggggccag 1740
tgagagcgag ttgattcaaa tggaaacaga agagatggaa gcctgctcta acggggcgct 1800
gattccaggc aatttatcca aggaagagga ggaactgtct tcccagatgt ccagctttaa 1860
cgargccatg actcagatca gggagctgga ggagaaggct atggaagagc tcaaggagat 1920
catacagcaa ggaccagact ggcttgagct ctctgagatg accgagcagc cagactatga 1980
cctggagacc tttgtgaaca aagcggaatc tgctctggcc cagcaagcca agcatttctc 2040
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cagacaaata agcagcaaga aacggcccca gtgacgactg caaataaaaa tctgtttggg 2160
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gcaggggtctg agctgggaca ggttctggta aatgccaaagt atgggggcat ctggggccag 2280
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aaaaatgttt ctgagacctc tttctacttt actgtctccc tagagatcct agaggatccc 2640
tactgttttc tgttttatgt gtttatacat tgtatgtaac aataaagaga aaaaataaaa 2700
aaaaaaaaaa aaaaaaaaaa aaaaaagggg gggggncccc c 2741

```

&lt;210&gt; 135

&lt;211&gt; 686

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (638)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (655)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 135

```

tcttcctttt ttccgcctct cgttcgcttt tgtcttacga ggcttccgga acacggccca 60
gaattacaga gaaaaacacac ctgcacgcgc actctctcgt acacgctgtg cggttctgt 120
ttggttgggc agttcgtccc aatttccgac tcacaggctg cggagcagca actctcacga 180
tatttgctcg acccgagcgc gtatccgctg cggggttctg gcgcgccctt tcagttctgc 240
ttgctgtcsg caccgctgcg ttacccggaa ccgccgggccc gaacagcatg acgtccgctt 300
tggaagaacta catcaaccgt atcctcaagc tggcgccgcg ggcgtgagcc ggggtcgcgg 360
agaggccgcg gtcggggatc ggtgggaggt tgggaggcct ggccctcggcg ggatccctggg 420
ggcgggcgag gagatgaggg ccccggaacg acccagagtt cgccggcggc gcctcgagcc 480

```

ttcccgcgtgc tgcggggccca rgggtccttt ccatttttggc tgcaaaaccc aaataaaaaac 540  
ccagtgtgat tattccgaac ttttctgtct taaaaaaaat gtacgtctct gattcttact 600  
tactatttcc ctatggcata agtggttaaag tttgtganta agatgaacag tcgtncctggc 660  
ggcgacaaca gtttgcaatc tttgta 686

<210> 136  
<211> 242  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (229)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (242)  
<223> n equals a,t,g, or c

<400> 136  
cagcttactc tcaatatatc tctcttactc tctctctctc tctctttttt ttttaatatg 60  
gtgaaattag accagggggtc agaacataga ttttagtctc cttagttca tctactagga 120  
gactaaatta gataatctct aaactccctt ttagttctaa aattctgtaa ttaaactcta 180  
gcataatcatc attttagact aaaagttttc ttcttcttct tcttttttnt tttgggtttt 240  
tn 242

<210> 137  
<211> 545  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (445)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (527)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (534)  
<223> n equals a,t,g, or c

<400> 137  
caggaagagc ccaactgggt atcagaataa gccacatgca ccttctgaaa ctgcccacaaat 60  
ccacacctgc ataagaattt gagcccagtt cataaagcag atcatgaagc aattatcttc 120  
ctggaagggt ttttagcttg ctctccagtt gcctcagcag ctttggtctt gtgccacagt 180

```

gagcccaagg ggaaggtgat ggaacagcat cacatctgca ggctcagtgt tttgtttggt 240
gagggtaagg ggaggggaatg tagacggatg aagaaatttc tccctactgc ttccattttg 300
atatttcttt aacttcacat ttcacacctca ttcctagcag ttgcctagtt atagaggatt 360
tcttttawct ttttttcaga ggcatgccag gtggaagtga ggtgcttgst ggsctacaac 420
tccagtgtct gcaattccaa aatgnccctt ggatggaggg ttggtgagaa tgtcaccaca 480
gtgggaaacc agcaatcggg ggaaccattc ccttaagcaa gcctttnaaa gttnttttaa 540
tgccc                                           545

```

&lt;210&gt; 138

&lt;211&gt; 396

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (334)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (373)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 138

```

tcctcgggga gccagttgt gccaccatt ctctgtaagg tggctcccagg gtgggcttag 60
gagcctataa tagtggccag tgccagagga ggctccctca agaaagccag agttgagatc 120
tgaggaggga gagggagtta gccagaccag ggtggagatg agggatttct gagcagcagg 180
acctgcaggg gcacaaggca agggccgcat cctagaggag acccagtggc caggcacatc 240
atgggaactg caggctggcc ccaagcctct gcccgcctcc tcccttgacg gcagggcctc 300
ctggagcctt gtgctcatcc tgggctcttg aggnccagc cctgcacaga gagcgagac 360
gtgccttgcc ttncaccg tccgctctgt cctctt                                           396

```

&lt;210&gt; 139

&lt;211&gt; 2771

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 139

```

cggaggtgag gtttgttacc gcgattctga gaggtgggct tttagtccct ccagacctcg 60
gcttttagtgc tgtctccgct tttctttcac cttcacagag atgtcttatg gtgaaattga 120
aggtaaattc ttgggacctg gagaagaagt aacgagttag ccacgctgta aaaaattgaa 180
gtcaaccaca gagtcgtatg tttttcacaa tcatagtaat gctgattttc acagaatcca 240
agagaaaact ggaaatgatt gggctccctgt gaccatcatt gatgtcagag gacatagtta 300
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tggtaataga ccagatgtta ttgaatccat tgattcacag gttttacagg aagcacgtcc 420
tccattagta tccgcagacg atgagatata tagcacaagt aaagcattta taggacctat 480
ttacaaaccc cctgagaaaa agaaacgtaa tgaaggaggg aatgaggcac atgttctaaa 540
tggtataaat gacagaggag gacaaaaaga gaaacagaaa tttaactctg aaaaatcaga 600
gattgacaat gaattattcc agttttacaa agaaattgaa gagcttgaaa aggaaaaaga 660
tggttttgag aacagttgta aagaatctga accttctcag gaacaatttg ttccatttta 720
tgagggtcat aataatggtc tcttaaaacc tgatgaagaa aagaaagatc ttagtaataa 780

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agctatgcc a tcacattgtg attatcagca gaacttgggg aatgagccag acaaatatcc 840  
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atggcagtc a gtatatcctt ttatagtgc cttatggccc cctcttccca gtttgaacta 960  
tcattttaaac attcagagat tcagtgggcc accaaatcca ccatcaaata ttttccaagc 1020  
ccaagatgac tctcagatac aaaatggata ttatgtaaat aattgtcatg ttaactggaa 1080  
ttgcatgact tttgatcaga acaatgaata tactgactgt agtgagaata ggagtagtgt 1140  
tcatccctct ggaaatggct gcagtatgca agatcgatat gtgagtaatg gtttctgtga 1200  
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tgtgaaccag cagtttcaag aggaaaagtt aaataaattg cagaagttac ttattctttt 1320  
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tgttaatcaa cttggtgatg cccatgactg gaaccagaac agagcaaaac aagctatcga 1500  
tcagggaaga tctccagtta taatagataa cactaatata caagcttggg aaatgaagcc 1560  
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gtggtgggta ggagctagga tgtttttcta caatcgaatt ttaaactaat ttatctattt 2160  
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caaaattatt tcttagctat aatcagcaca tcacttagtt caaacaaaat tccccagcaa 2400  
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cttgtaatgc atacatagtt atcatcctcc ttctcaaccc atctccctaa cccacatgc 2520  
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taatgtgata taattctagt ataaaaatat tttggacagt tgcttaacat ggtcataaga 2640  
ggatttgtac tatagaatat cttctagtac taatttttct gtagagcaaa ttatatttct 2700  
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aaaaaaaaa a 2771

<210> 140

<211> 422

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (329)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (392)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (422)

<223> n equals a,t,g, or c

<400> 140

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actaagggat actgctcaaa gttaagatga caattatcag tgatgtataa taagagatgc 60
tgaaataagg gtgataataa aggtcccggg cttgctcact catggtcaca gtaaaatatt 120
tatgcaagta tataccacct tacataaacc tcactttaga tatectcaag tgattgcaca 180
tcaagatctt gcaaattgaa aaatacatta agtatgccat ggggttgact ttttatcaga 240
attcacacat gatttctttc ataagttcag gatcttttag ggtgcccata gccttgccca 300
tatttacgta ttttataaac ctacatttng gkatawgaag tcttttcytc tttttttgag 360
acgagtatcg ctctgtcgcc caggctggag tncagtggca ggatcttggc ccactgcaag 420
cn 422
```

<210> 141

<211> 1630

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1566)

<223> n equals a,t,g, or c

<400> 141

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tggggggccg agacagactt cgcccagggt acgggtagta gggggcgccg gcttggcctc 120
gtggggtgta agaccactt gctgttgccc ccggaccttg ccgccacacc agccctgtcc 180
tggggcgga a ccgaagaagg tcgggcccctg ctgcccgcgc ccgtccttcc tcttcccgg 240
gcgggtcactg tgcgtggctc acttttagag tttacttcaa ccacgtggag cttccatggc 300
ggcctctcag gtcctggggg agaagattaa catcctgtcg ggagagactg tcaaagctgg 360
ggacagggac ccgctgggga acgactgtcc cgagcaagat aggcctcccc agcgtcctg 420
gagggcagaag tgtgcctcct acgtgttggc cctgaggcct ggagcttcag tgcctcactc 480
acaccgggtg ccctgggcag tgcccttgcc tacagatccc acggtgtcct ggatcccagg 540
ctcttgggtg gctgtgcctg gctgtgcacg gggccggtaa tttgggtcaac 600
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gaccgaatct tggagccgca ggatgtcgtc cgttcggag tcttccctca cacgttgggc 720
tgcgtctgtg ccgcttgccct ctactacctg tcccctctga aactggagca cttggctctt 780
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tacgccatcc aggtgggggt cctggccatc tcccactgg tctatgcat cccctcgcc 960
ctcagcaccg aggccattct ccattccaac aacaccaggg acatggagtc cgaccgggag 1020
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caggccttca acaaaactgcc ccagaggact gccaaagtca acctcctgct gggacttttc 1260
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attgtttttg tgttcttaaa gataatatgt tgtttttctg ttttttgttt tttccatttt 1500
atgggggaat ttaaaaacca ttcttgtatc agaagggtgaa ttaggcgcat ggtctttgtt 1560
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ttattnaata aatttccact agaggggtgtt ctcaggtcac tttgcagtgg aagtgggact 1620  
tagttcctcc 1630

<210> 142  
<211> 264  
<212> DNA  
<213> Homo sapiens

<400> 142  
accaggatgt ctctgaaatg gacgtcakt ttctgctgat acagctcagt tgttacttta 60  
gctctggaag ctgtggaag gtgctagtgt ggcccacaga atacagccat tggataaata 120  
tgaagacaat cctggaagag cttgttcaga ggggtcatga ggtgactgtg gtwracatcy 180  
tcggcttcta ctcygtgcaa tgccagtaaa tcactctgcta ttaaattaga agtttatcct 240  
acatctttga actaaaaatt attt 264

<210> 143  
<211> 636  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (9)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (260)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (323)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (480)  
<223> n equals a,t,g, or c

<400> 143  
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gccgggcgct ggcgcgtttt ctttactatc acgttaccgc tgaccttacc gggaattatt 180  
gttggtacgg tactggcttt tgctcgttct ctcggtgagt ttggtgcaca tcaccttgt 240  
gtcgaacatt cctggtgaan gcggaacctat tccttctgcc atgtataccc tgatccagac 300

```

ccccggcgggg aaaagtggag cgnccgagact gtgccattat ttctattgcg ctggcgatga 360
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catgctggaa ctgaattttt cccagacgtt gggcaaccat tgcctgacta ttaatgaaan 480
taccgtactt caatccataa agttgcgtta agccgcacgg ttcaaaacgg ctgggcacca 540
gaatgacgtc cgcgcgcgcc ataatgcgat gcgaawatgc tcgtgatagc caatctgaac 600
gccacactga ccgggggtatt tccgtgccgc cgcaag 636

```

<210> 144

<211> 500

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (489)

<223> n equals a,t,g, or c

<400> 144

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ccgccctcgg cgtcctctgt agcgggagac ctaggccgag ggacccggac ggaggtagag 60
gccaggcgag cgcgtccggg agcggagtc gcgcccgcgc ccgccatgcc ggacagctgg 120
gacaaggatg tgtaccctga gccccgcgc cgcacgcgcg tgcagccaa tcccatcgtc 180
tacatgatga aagcgttcga cctcatcgtg gaccgacccg tgaccctcgt gagagaattt 240
atagagcggc agcacgcaaa gaacaggtat tactactacc accggcagta ccgccgcgtg 300
ccagacatca ctgagtgcga ggaggaggac atcatgtgca tcaaaktcga ccaagaaatt 360
atcacattat gcaggatcgg ytcaaagcyt ktcagcagag ggaaggacag actaccagca 420
gactgtatca aggaaktgga gcagttaccc aggtggccaa ggctaccagg gaccgntatc 480
aggacctgng ggcctacatg 500

```

<210> 145

<211> 1945

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1934)

<223> n equals a,t,g, or c

<400> 145

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cagacatatc tcagatttta taacctaaaga ctgaatcact gcattttacc cttaatgagg 180
tacgcttaca ctaatctttt tgaaacagta cttaaattgt agcaggacaa gccgcagaca 240
aaacccctca gccagcgagt ttaagaaaga agggctttat tcggccggga tcttcggcaa 300
gactcacgtc tccaacaacc aagctcccca agtttccggg tctgtcacct ccaggctgag 360
ccgggctggc ggaagaggca cgtgcgctgc tgaatggagc tggctcgctgg ttgctacgag 420

```



caggtcctct ttgggttcgc tgtacacccg gagcccgagg cttgcggcga ccacgagcaa 480  
tggactcctt tggctgactt cactcaccat gctcacactg cctccttgtc agcagtagct 540  
gtaaatagtc gttttgtggt cactgggagc aaagatgaaa caattcacat ttatgacatg 600  
aaaaagaaga ttgagcatgg ggctctagtg catcacagtg gtacaataac ttgcctgaaa 660  
ttctatggca acaggcatctt aatcagtggg gcggaagatg gactcatctg tatctgggat 720  
gcaaagaaat gggaatgcct gaartcaatt aaagctcaca aaggacaggt gaccttcctt 780  
tctattcacc catctggcaa gttggccctg tcgggttggt cagataaaaac ttttaagaacg 840  
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ggtaaaatta cttttggcag acagtgtttt atgaattatg tatcatgttg atatataata 1800  
tgtaaatgtg tcatgtaatt tttactttgt acaaagcaaa taaagatctt tctcaaaaata 1860  
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ttactgcggt ccgncaggg aattc 1945

<210> 146

<211> 1114

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1006)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1034)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1055)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1084)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1108)

<223> n equals a,t,g, or c

<400> 146

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tgtggcgggc gccgcagctc cgcgtccccc gcgcctctc ccagcgcaga cttcaagggc 120
taccactgga cccttccccct gtcttgaacc ctgagccggc accatgcacg gacgcctgaa 180
ggtgaagacg tcagaagagc aggcggaggc caaaaggcta gagcgagagc agaagctgaa 240
gctataccag tcagccaccc aggccgtatt ccagaagcgc caggctggtg agctggatga 300
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tgtgctgctc aaagagctgg agctggtgca gaatgcttct tctactgacct caatgaccag 840
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tgctgcatg tgagccggga csaggcctgt ctgactgtct ccttctctcg gscctctta 960
rtgggctyca ggatkgagat cttgctgctc atgggtgatg aatctncccc tgattgtgga 1020
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gcanaaattg ggctggggca aggctggntg gaaa 1114
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<210> 147

<211> 546

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (433)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (486)

<223> n equals a,t,g, or c

<400> 147

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tgccgctccc gccttcgcag ccagcgcggg cttacctagt gttaagtctc tcttcttggg 120
tggccacgc ctaagcgacc tatgcttctt gttcttctga aatcttacag tcccccttag 180
atgtaggttg gctattggtg gcttccgatt cagataagtt tggaacttga cagatgtttt 240
cggggggctg ctttagagag aggccttggg ctatgcaagg ggaggaagga ggttcagaaa 300
aacggggctg gggggctcggc aggacgactc ttraartgtg gaaggtggaa gctgggaggg 360
gagataaagg gcaccraaga ccagcttggt tgctcctatc aaggtgatcc tttccagagc 420
aagagccata tgnatgtcta gtcgcacgag tttgtgccaa gtcctttgca aaaaccttca 480
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gatgtnggat ctcatgtaat cttgaagaca tcttagtcgt cctaagggtt aattatttaa 540  
ttgatg 546

<210> 148

<211> 1763

<212> DNA

<213> Homo sapiens

<400> 148

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cgacagctgc tctgggtact gtttccgggt cagggtgacc tctggggtga ggaaactgcg 180  
actgggagcg ggacccaggc gtgcagcatt cgccatgctc cgctcacgcg tgggagactg 240  
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ttgcgtgacc ttactgccct ccgtctacag gccttgtacc tctccaggcc gatttttcca 360  
caatttaaat ccagtttcac ctggtatcca gctccagcaa cttagagcgt ttcacgtcac 420  
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agtgggtttt gattcccacc atggccatca ccagtttctg gttattttaa ttttgtacct 540  
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aattaagtgg agaccaaata actttgccaa ctacagttga ttattcatca gttcctaagc 660  
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aaggagggaa tgggaatgtg gcaacacaac aaaattcttt ggaacaactg gaacctgact 780  
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cacaagatct gcctttttatt catcagtctt ctgaattagg tgacttagat acctggcagg 960  
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ggttacctga cctaaattag ataaattgta gggcttttagc tttcttattt ttgtcaaaag 1620  
ttggtgttga catacattcc ctctaatttg aactgggtatt gtttacgttt gatacaacat 1680  
taagggaattt gatgattttc atttcatgaa aatgacatta aatgcaataa ttttacttat 1740  
cataaaaaaa aaaaaaaaaa aaa 1763

<210> 149

<211> 371

<212> DNA

<213> Homo sapiens

<400> 149

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ctagtctctg tttaatggta aaaggagact ttgccataat tttcagatga agatgtttcc 180  
caaacactgt ttacagaatg agatgtgact ctacagatac ctcatagaag acaatccaag 240  
atcatacttc attaacttga cagagtacgt gtcttaaagg aagcatcagg aattccaata 300

tttgcmttta aaatactttt twagggcctt ttatattagg ccatgcttgg aaaactggat 360  
 tttttttatt a 371

<210> 150  
 <211> 432  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (3)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (379)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (408)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (421)  
 <223> n equals a,t,g, or c

<400> 150  
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 ggcgcccggc ctgcgcacgg gaacctggac tggaaacctta cttgcaggtc cccaacttgc 120  
 gtctctyctc tctgtctcta cccagccaa ggacaaagac tctctctccg gaaggcctcc 180  
 cccagctgag ggaacgttcc aggtcytccc tcggccctgg ctgcgcgccc ggtgccggct 240  
 ctgacgtggt ttcctctccc ctgaggactg gtcctgctcg ctccctcgtg cctccctcgc 300  
 gggcgccctc ggytctctct tctctacgg ctacaacctg tcgggtggtga atgcccccam 360  
 cccggaagga caattttgnt gggccaataa atgggggtttt gaaatttntt gttggatttg 420  
 ntgaatgggc tt 432

<210> 151  
 <211> 401  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (234)  
 <223> n equals a,t,g, or c

<400> 151  
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 cttggacctt gatggaaatg agagcscatt ggccctattg atgtctaacg gcagwacgaa 120

aaggggtgaag agtttatcca aatctcggcg aaccaagata gcaaagaagg tagacaaggc 180  
taggctgatg gcagaacagg tgatggaaga cgartttgac ttggrrtcag atgntgagct 240  
gcagattgac gagagattgg ggaaagagaa ggcgaccctg ataataagac caaaatttcc 300  
ccggaaattg ccccggtgca accttgctct gaccccaacc gagttcgtga accaggagaa 360  
gttgagtttg acattgagga ggatatacaa cagatgaggg t 401

<210> 152

<211> 851

<212> DNA

<213> Homo sapiens

<400> 152

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tggttgga ggtccaactg taatgaatgc agcaccattt ctctctacga cgtgggtttc 180  
tgcatgaa agggccacag ccacagctat tgcataatg ctcatgtatc ttgggggagc 240  
atgtgcattt ttagttggac cacttggtgt tccagctccc aatgggacat cacctcttct 300  
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tcttctccc agtggtgctg cagctagcca gcgtgagtta tcggagaagc gtttgtagat 480  
tattaagcaa ttttcgattt ttgatgattg cttagcata tgccatacca cttggtgtat 540  
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atgctggctg gattggattt tgggccatag ttggaggctg tgttggtgga atagctatgg 660  
caaggtttgc agattttatc aggggtatgc tgaaactaat tcttctctc ctgttttcgg 720  
gagctacact gtcattccagc tgggtcaccc tgamctgttt gaacagcatc acacacctac 780  
ctttaaccac agtgacattg tatgcctcct gtattctcct gggagtgttc ttgaatagca 840  
gcgtgcctat a 851

<210> 153

<211> 1678

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1663)

<223> n equals a,t,g, or c

<400> 153

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ttatagggct cctcaggag gccccccagc cccaaactca ccacctggcc gtggacacct 180  
gtgtcagcat gtgggacctg gttctctcca tcgcttgct tgtgggggtg actggtgccc 240  
tgcccccat ccagctctgg attgtggag gctgggagt tgagaagcat tcccaacct 300  
ggcagggtggc tgtgtacagt catggatggg cacactgtgg ggggtgctctg gtgcaccccc 360  
agtgggtgct cacagctgcc cattgcctaa agaagaatag ccaggctctg ctgggtcggc 420  
acaacctgtt tgagcctgaa gacacaggcc agagggtccc tgtcagccac agcttcccac 480  
accgctcta caatatgagc cttctgaagc atcaaagcct tagaccagat gaagactcca 540  
gccatgacct catgctgcty cgctgtcag agcctgcca gatcacagat gttgtgaagg 600  
tcctgggcct gccaccagg agccagcact ggggaccacc tgctacgcct caggctgggg 660  
cagcatcgaa ccaggaggat tcttgcccc caggagtctt cagtgtgtga gcctccatct 720

cctgtccaat gacatgtgtg ctagagctta ctctgagaag gtgacagagt tcatgtttgtg 780  
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gaggtttgtt caggtccccc aaaccaccgt cagatttgat gatttcctag caggacttac 1620  
agaaataaag agctatcatg ctgtggttaa aaaaaaaaaa aanaaaaaga agtcgacc 1678

<210> 154

<211> 1158

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (449)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (453)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1138)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1148)

<223> n equals a,t,g, or c

<400> 154

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cctcctatta aagtcacact gccaacatt aaagacggct ctgaagctta ccggcctggt 180  
acaaccaga gagtgcctgc tgcttcccca tctgtcaca gtattagtag tgcgactcca 240  
gaccggacct gttttccccg agggagctca agccgaagca ctttccatgg tgaacagctc 300  
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gcatttgcaa tgccagaagg ggaacgtcaa ctggtataat aagcaaaatc acatccaaat 420  
ttgttcgcag ggatccaagt gaaggcganc agntggcaga accgacacct caagaagtac 480

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atcaggggaa ccaaaagaaa gagacaagga agaggggtaaa gattctaagc cgcgttcttt 540
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aatccgaaaa gtgttagatg caaataactg tgattatgag caaaaagaga gatttttgct 660
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tgcctttaag aacattgcat caaaaatagc aaatgagctt aagctgtaaa gaagtccaaa 840
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tgcctaattg ggtctgcctg tgaatctccc catgtagaat ttgcccttaa tgcaataagg 960
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cttaaaaaag aggttcacat gtacaggtaa gtatattgtg tatttctgtt cattttctgt 1080
tcatagagtt gtataataaa acatgattgc ttaaaaaaaaa aaaaaattt 1140
gcggccgnca agggaatt 1158
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<210> 155

<211> 1969

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (479)

<223> n equals a,t,g, or c

<400> 155

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cggaggaggc cgagacgctg gcagagaccg agccaggtaa gcggcgaggc cggggaaggg 180
gggcagccca aggcggaccc ccagagctcg ggggtgcaggg acgcggggct ccgcggcgac 240
aggcagaggg accttcccgc ctccgcagcc acgcgcgcgc ccccggaatg aaccctgagc 300
cccagcgtca gggcggcgca ggattctgac accgcaggat tcgcccgggt ccgtgccttc 360
cgttccctgg ggctcagaag ccggcgcgac tgcagcgcca ccgccttcca ccgtcccagg 420
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aataataact tattaacagt gacaaagcag gggttgacca gcaaagcctc cgtgtgcttc 540
ccaatcccgt gggcagtaaa gcggtatatt cggggttccc tccggtgtcc aggagagaga 600
gtccacttat tttctttcct gtcacttctg atgaggcgac cgaacgcctc gtttagcgaa 660
gagggaaatta aagcccagaa tgagcctgcc tctgcgtctc cagtggcaca agccctctct 720
tgcccacctg gatcctaaca ccggatgtct tttggtctgg ccttcccggg tatcttgttc 780
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tgtactgcgt gggcagtgga gccagcttt tkggtaatgc cagctcaggt gacaaccatt 1560
atgatcaaaa actgccttcc ccagggtgtc tctatgaaaa gcacaagggg ccaaggctcag 1620
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ggagcaagag tgtgcacacc aamgctattg gagatttgcg tggaaakctc agattcttca 1680  
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gtgcatactg taggtcattt tttttggttc tggctacctg tttgaagggg agagagggaa 1800  
aatcaagtgg tattttccag cactttgtat gattttggat gagttgtaca cccaaggatt 1860  
ctgttatgca actccatcct cctgtgtcac tgaatatcaa ctctgaaaga gcaaacctaa 1920  
caggagaaag gacaaccagg atgaggatgt caccaactga attaaactc 1969

<210> 156  
<211> 400  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (359)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (366)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (398)  
<223> n equals a,t,g, or c

<400> 156  
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aaaaggaagaa aaagaaagga aagaaaggaa agaaagaaaag agagagaaaag aaagaaggaa 120  
aaggaggaag ggaattccag gtatatacca ctgcatgagt aaaggcaggg ttgtggatag 180  
acatagttga tttgtagggc ccttgtttgc caagaatagt cctgctttac ccctgttgtc 240  
ctgatgtaat tattaataat actgcctcat tcagtcttaa ataagtcttg grtttgact 300  
agaaattata tggctaccyc tttatgtggg actaaaagta attccttgrg acmgggacnt 360  
ggagtnaggt gccaaggaa agctagaagg tagttttntc 400

<210> 157  
<211> 722  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (720)  
<223> n equals a,t,g, or c

<400> 157  
catggttttg taacctcatg cactgtggga atgtcagagg accccgagat aatgcttcac 60  
tgccaagtct gaaaattgtg tccacaagat ttgattggtg gtattttcta tcattgtaca 120  
acttaaaata tcttctaatt tccatttttt ttttttgaca tgagttgtat agaaatgtgt 180  
gcttcagttt ctgttatagc aacaactcct gtcaccata gccttataaa aattcctaatt 240



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agtgagattg tgatgggata acggaatgtc aagtctaatt gtcaggaaaa gacaaaaataa 360
catgggaatg acaatcaaaa tggactaagg acttagaaga tccgaaacta tgaagctact 420
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tagtagtaac tggcaatagt ttacaaacac attttgtgta tactgctgtc attgcactga 660
ttaccttctg ttgtagtgac tttgttctat tagtccactc aattaaaaata tttggttttt 720
tt 722
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<210> 158

<211> 1200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (274)

<223> n equals a,t,g, or c

<400> 158

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gcttctcatc acttctacaa cccacaaatg gaaaaagaac cgagtgcag tgatgagta 120
tgatactagg gaagatcagt ggattaatat aggtaccatg ttaggccttt tgcagtttga 180
ctctggcttt atttgccttt gtgctcgtgt ttatccttcc tgccttgaac ctggtcagag 240
ttttattact gaggaagatg atgcacggag tagntctagt actgaatggg acttagatgg 300
attcagtgag ctggactctg agtcaggaag ttcaagtctt ttttcagatg atgaagtctg 360
ggtgcaagta gcacctcagc gaaatgcaca ggatcagcag ggttctttgt aaatagtatt 420
ttgagacact aagatgtttc tactgctacg gratgtattt taaacacata tcgtttcttt 480
ttcttggaag aaaagttagt taggaccaca gatttggttt agaaagggtg atattttgaa 540
atactacaag gtttagacag tccatgaatc gacctgttta ataatttacc atcctgaaag 600
tccagaatta aaatatggaa gcaagaacta tataattgat taggatgctt ggtaggtttt 660
tttcattggt caaatattca ttgcacagtg gattgttttg attagttagt atgctttttt 720
tttaattaat tcagtccttct gttaattttt aagttttggt tagtgccaca aggaatttaa 780
ctttttgatt tgtataatag aaaactgaac taggaattgt tagcggggtt ttgaaggatg 840
tgtactttcc ttcaaaaata agtggttagt tttcaaaatt ttacactagt cagttcttta 900
tattctaagt taaatgtagt ttgtaaaatt attttggttt tcttctacaa aggaaaaaat 960
tggatttata tatataaggt tactgcataa tgatttcatt ttgataatgt gcagaatggc 1020
ctcataagct cacagaaaag aaaaaaaaaa aaaaaaaaaa aagaaaaaat caggattcca 1080
ctgtttttaa agaaatctca gtttttattt tggaatataa aatgtgtatt tggatatagt 1140
gaccaatttt ctatcccaa aaacacccat tcttagtaat gtcatgaatt aaacaccctt 1200
```

<210> 159

<211> 345

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (316)

<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (321)  
<223> n equals a,t,g, or c

<400> 159  
ttcggcacga gagaaaagta aaaaaaagaa agaaagaaag aaacaaacaa aaaaaacaac 60  
tggcatacat atatctccta aatacaggaa gaagtattca taatctcact ctttagcatg 120  
gtacaaagct aaccacaact aawttattgt atataargcc acgtgaagtg stgtgtgaca 180  
gccttatttt gtgaataggg ctgagaaaac cagttcaaat tctcctgaga ctatttcaga 240  
ggrgttaaaa ttggaactcg tttaaaaatc atgrtttatt tacttaatat taagtttagg 300  
ttaacgggca gaaaangagg ngcctggggg catcacccaa atttt 345

<210> 160  
<211> 476  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (312)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (377)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (421)  
<223> n equals a,t,g, or c

<400> 160  
aattcggcac gagagacacc agagtgaagg agagaggcca tgctgtgtcc gagaagctcc 60  
tactgggggtg gaagggacag ctccacaaag gctgctcttg caggggctct cctgcagcaa 120  
ggtgcctgct gactgtcccc agactgtctc ccgacacaga gggatgcaaa ggcagcctct 180  
tcctgctcag tggaataggg aaattatata acctttcact tcccactctc acttctgccc 240  
ctgctaccct tagtcttttg cttttgctga cattttcccc tcttatcttt tctcctgacc 300  
aagttctagg tntttcatag ggcagtcctta ggtgagggtt ggaaccccaa tgaagttggg 360  
caacagaaac ccagctnaca atggctgttc actgtgggca agctgtttcc ccttcattctt 420  
ntaaaagtgg aggtgggggtt agtgtatgag tctgggtttc cattcaactg tgtgtg 476

<210> 161  
<211> 520  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature

<222> (512)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (520)

<223> n equals a,t,g, or c

<400> 161

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aattcggcac gagctgcgcg cggctacagc acggttcgtt tttccttttag tcaggaagga 60
cgttggtggt gaggttagca tacgtatcaa ggacagtaac taccatggct cccgaagttt 120
tgccaaaacc tcggatgcgt ggccttcttg ccaggcgtct gcgaaatcat atggctgtag 180
cattcgtgct atccctgggg gttgcagctt tgtataagtt tcgtgtggct gatcaaagaa 240
agaaggcata cgcagatttc tacagaaact acgatgtcat gaaagatttt gaggagatga 300
ggaaggctgg tatctttcag agtgtaaagt aatcttggaa tataaagaat ttcttcaggt 360
tgaattacct agaagtttgt cactgacttg tgttcctgaa ctatgacaca tgaatatgtg 420
ggctaagaaa tagttcctct tgataaataa acaattaaca aataaaaaaa aaaaaaaagg 480
ggggggcccc tctaaaagggt ccaagcttac gnacgggtgn 520
```

<210> 162

<211> 339

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (109)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (334)

<223> n equals a,t,g, or c

<400> 162

```
aattcggcac gagcgcgcct ccacgcccag ctaatttttg tatttttggg agagacgggg 60
tttcttcacg ttggctaggc tgatcttgaa ctcttgacct caagtggtn tgcctgcctca 120
tcctcccaaa gtgctgggat tacaggcgtg acacctgcac ccacccatgc tctagtacat 180
cctaaagaat gccttttagtt cctctttcct gacattactc tgcttaaatt ccccagattc 240
aagctttttg agaatcctat ctacgacattt tgggcatcag gccatgttat atataggtrc 300
acaacttcta ggccttggtt agttggacag gttnaaaag 339
```

<210> 163

<211> 357

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (343)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (349)

<223> n equals a,t,g, or c

<400> 163

```
aattcggcag agcagaacat tggatatgagg cacatgactg tagatcttct cattaataat 60
aggcaacctg gtcaggtgca cgartctagg gttcagaatc caacaggctc aaattcaagt 120
ccagctcagc cacgtggctg atgctgtctg aacctcagcg tcctcagctg ttaaacagag 180
gtaaccatcc ccattctcagc agctttggga ggaaattaaa tgagatatat tggggatcca 240
gataaccaat aaaatatcaa atcactttac cagttcaagc tcttaccact tcagtgattg 300
catgggcttt atcactgacg gatggaactc aggggttcca gnggttcgng acccagc 357
```

<210> 164

<211> 1079

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (303)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (831)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (993)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1058)

<223> n equals a,t,g, or c

<400> 164

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ggcacgagct tggcctccag agtgctggga ttacaggtgt gagctaccgc gcccggccta 60
ttatcttgta ctttctaact gagccctcta ttttctttat ttttaataata tttctcccca 120
cttgagaatc acttgtagt tcttggtagg aattcagttg ggcaatgata acttttatgg 180
gcaaaaacat tctattatag tgaacaaatg aarataacag cgtattttca atattttctt 240
attccttaaa ttccactctt ttaacactat gcttaaccac ttaatgtgat gaaatattcc 300
tanaagttaa atgactatta aagcatatat tggtgcatgt atatattaag tagccgatac 360
tctaaatara rataccactg ttacagataa atggggcctt taaaaaatatg aaaaacaaac 420
ttgtgaaaat gtataaaaga tgcactctgtt gtttcaaagc gcactrtctt yttttcagta 480
ctacaaaaac agaataattt tgaagtttta gaataaatgt aatatattta ctataattct 540
aaatgtttta atgcttttct aaaaatgcaa aactatgatg tytagttgct ttattttacc 600
tctatgtgat tatttttctt aattgttatt ttttataatc attatttttc tgaaccattc 660
```

ttctggcctc agaagtagga ctgaattcta ctattgctag gtgtgagaaa gtggtggtga 720  
gaaccttaga gcagtggaga ttgctacct ggtctgtgtt ttgagaagtg ccccttagaa 780  
agttaaaaga atgtagaaaa gatactcagt cttaatccta tgcaaaaaaa naaaatcaag 840  
taattgtttt cctatgrgga aaataacccat gagctgtatc atgctactta gcttttatgt 900  
aaatatttct tatgkctcct ctattaagrg tattttactaa aactctgtaa tctccaaaat 960  
attgctatca aattacacac catgttttct atnattctca tagatctgcc ttataaacat 1020  
ttaaataaaa agtactattt aatgatttaa aaaaaaanaa aaaaaagaaa aaaaaaaaa 1079

<210> 165

<211> 1325

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1302)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1313)

<223> n equals a,t,g, or c

<400> 165

ttaaaacaag atacatacat agtataacac acctcacagt gttaagattt atattgtgaa 60  
atgagacacc ctaccttcaa ttgttcatca gtgggtaaaa caaattctga tgtacattca 120  
ggacaaatga ttagccctaa atgaaactgt aataatttca gtggaaactc aatctgtttt 180  
tacctttaa cagtgaattt tacatgaatg aatgggttct tcactttttt tttagtatga 240  
gaaaattata cagtgtctaa ttttcagaga ttctttccat atgttactaa aaaatgtttt 300  
gttcagccta acatactgag ttttttttaa ctttctaaat tattgaattt ccatcatgca 360  
ttcatccaaa attaaggcag actgtttgga ttcttccagt ggccagatga gctaaattaa 420  
atcacaaaag cagatgcttt tgtatgatct ccaaattgcc aactttaag aaatattctc 480  
ttgaaattgt ctttaaagat cttttgcagc tttgcagata cccagactga gctggaactg 540  
gaatttgtct tcctattgac tctacttctt taaaagcggc tgcccattac attcctcagc 600  
tgtccttgca gttagggtga catgtgactg agtggtggcc agtgagatga agtctcctca 660  
aaggaaggca gcatgtgtcc tttttcatcc cttcatcttg ctgctgggat tgtggatata 720  
acaggagccc tggcagctgt ctccagagga tcaaagccac acccaaagag taaggcagat 780  
tagagaccag aaagaccttg actacttccc tacttccact gctttttcct gcattkaagc 840  
cattgtaaat ctgggtgtgt tacatgaagt gaaaattaat tctttctgcc cttcagttct 900  
ttatcctgat accatttaac actgtctgaa ttaactagac tgcaataatt ctttcttttg 960  
aaagctttta aaggataatg tgcaattcac attaaaattg attttccatt gtcaattagt 1020  
tatactcatt ttctgcctt gatctttcat tagatatatt gtatctgctt ggaatatatt 1080  
atcttctttt taactgtgta attggtaatt actaaaactc tgtaatctcc aaaatattgc 1140  
tatcaaatta cacaccatgt tttctatcat tctcatagat ctgccttata aacattttaa 1200  
taaaaagtac tatttaatga ttaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260  
aaaaaaaaag gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa angggggggg ggnccaaaaa 1320  
aaaaa 1325

<210> 166

<211> 394

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (316)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (341)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (376)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (392)

<223> n equals a,t,g, or c

<400> 166

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aattcggcac gagtttgcac ccaaattggt tgacctttgt gcagtggctc ccattatcaa 60
ctggggaacc agtacaatct ttacctaggt actactgagg ttgttctctc tccatcacia 120
aatttcacatgc tatttatctg tgagaaaatg cctgaggact ttcacacagt aattcatctt 180
atctggaacc cttaggatca gatgtagacc gagcaaattgt caagttcaca gagaacacct 240
gtgtcttcag aacattaaaag ggcaccatta gagcttggtt cccttcactt tacatgcaca 300
tttttggsat aagttngggg ctkratgatg ttgtcatags naatactgct agratgrttg 360
ctgtactcat tcactnccaa aaaagggggg gntg 394
```

<210> 167

<211> 517

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (122)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (215)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (400)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (401)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (472)

<223> n equals a,t,g, or c

<400> 167

```
ataattgcgg ctctttctcc tattcagatt ttaccacagtg atggaaaaga tcaattttct 60
tgtggaaatt cagtggctga ccaagccttc cttgattctc tctcagccag cacagctcag 120
gncagttcgt cggctgccag caacaatcac caggtagctc tcaattcctc cttctggatg 180
tggctggctt tacggaaaac agagcgtatt tgtgnaaggc ttgtgatgca ttatagctat 240
tgccattccc caaaagcaaa aacaaagtcg ctttaggttg ttctgtggca tttctgttgg 300
gtactaacia agaaatcacc tgttwagcct gataatgact gtttgcaaât ttattataag 360
agaaaaggca ggggtattgag gggtgctttt aggaagtctn nccatgatat ggaacacaga 420
ccccagaaac ttgcaaatac cctcttaggt taaggcatgg aaagaggagg angagagagg 480
tcttgtttgt tgaggaggtc catgtcaggc cttggcc 517
```

<210> 168

<211> 341

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (335)

<223> n equals a,t,g, or c

<400> 168

```
cttccctcag ccottggcca acagcattct actttctgtc tctacggatt tracacttta 60
gtagcctcat gtaggaagaa tcataatact tgtytttttg tgactggctt atttcactta 120
gcataatatt ttcaatgttc atccattttg aagctccatg tgagtgggca ggaacttggt 180
aactggaggc cttcactgag aagtgattaa ggtgatgaat acctgccagt gcagtggctt 240
cacacctgta ctccagcact ttggggaggc caaggcagga agatcatttg agccccagga 300
tttsgggacc accttkggca atatagttag acccngtggt t 341
```

<210> 169

<211> 350

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (293)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (305)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (311)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (314)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (338)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (343)  
<223> n equals a,t,g, or c

<400> 169  
ttcggcacga ggtcttgact cctaccccc tacaacacat ataaaatcag ttccagatag 60  
atcacacatc taaatgtgaa atgcaaaata ataaagcttt aagaaaaaaa gtaatggaac 120  
catcttcatg atcttagagt aagtagagat ttattaaagta ggatattaaa ggaacactat 180  
aaatttaggg aaaaaatcaa tatattgatt atattaaaaat taagggaactt ttcctcatta 240  
agaggccaca aagtatttgt agtatacaca tccaacaaaa gttccatatt ccngaattwtw 300  
tgganggaat nccnatggtg cgttaaaaaa aggccagncc cangggggggg 350

<210> 170  
<211> 441  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (111)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (143)  
<223> n equals a,t,g, or c

<400> 170  
aattcggcac gagacatggt gaacctgggtc tctacataaa atacaaaaac ttagatgggc 60  
atggtggtgt gtgcctatag tcccactact tgtgggggcta aggcaggagg ntcacttgag 120  
ccccggaggt cgaggctaca gtnagccaag agtgactac tgtactccag ccaggggcaag 180  
agagcgagac cctgtctcaa taaataaata aataaataaa taaataaata aataaataaa 240



taaaaaaaa caaagttgat taagaaagga agtataggcc aggcacagtg gctcacacct 300  
gtaatccttg ctttttgga ggctgaggca ggaggatcac tttaggcctg gtgtgttcaa 360  
gaccagcctg gtcaacatag tgagacaytg tytytaccaa aaaaaggaag gaagggaacac 420  
atatcaaact gaaacaaaat t 441

<210> 171

<211> 403

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (399)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (401)

<223> n equals a,t,g, or c

<400> 171

ttttcatgaa cctcttccct gggaaacctt atgactcaac agtcaaaggt gtccgaatag 60  
taaagatggt tttcagtgat caggtctgtg cccatgcctg gccttggata gactctgaaa 120  
tgagattctt tgtttgattg atggggtgat ggtttctgtt gtgtacattt gaaggaaacc 180  
agtttcccca cccaaaattt ctaaggagtt taatctttgg ggtrtagggg agttaaaacta 240  
cactgagtca aggaagtaat tgattgcata tttcctctaa aagtcagcta tggrrtgata 300  
ttgactaaaa caaactagca gttctcttcc accaccaagt cmgagcgtct gttcaccatt 360  
ctgcatgggt aaaagracc acttagggat gggtaatgnt ncc 403

<210> 172

<211> 984

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (48)

<223> n equals a,t,g, or c

<400> 172

caagatatatt acttccgctc caaacaaga tgggccagct aacgagcncg ggggaaacat 60  
ccgcccggaa ggccacttga aggcacttcc gccctctctt aacatggagc cggcgggaagg 120  
ggtggtgtag ggccgggcga taatggcggc gtcgagggctg gagctaaacc tggcgcggt 180  
gctatmccgc tgcgaggcga tggcagcggg gaaacgggac ccggacgagt ggcgcctgga 240  
gaagtacgtg ggagccctag aggacatgtt gcaggccctg aagggtccacg cgagcaaacc 300  
ggcctctgag gtgatcaatg aatattcctg gaagggtggat tttctgaagg ggatgctgca 360  
agccgagaag ctgacctcct cctcagagaa agcactggcc aaccagttcc tggccccctgg 420  
ccgtgtgccca accacagcca gagagcgagt gcccgccaca aagacgggtgc atctgcagtc 480  
acgggcgcgg tacaccagcg agatgcggag tgagctacta ggcacggact ctgcagagcc 540  
tgaratggac gtaaggaaga gaactggagt ggcagggtcc cagccagtga gtgagaagca 600  
gtcggcagct gagctagacc tcgtcctgca gcgacatcag aacctccagg aaaagctggc 660

ggaagagatg ctaggactgg cccggagcct caagaccaat accctggccg cccagagtgt 720  
catcaagaag gacaaccaga cctgtcaca ctcactgaaa atggcggacc agaacctgga 780  
gaaactgaag acggagtcag agcgtctgga gcagcacacg cagaagtcag tcaactggct 840  
gctctgggcc atgctcatta tcgtctgctt catcttcatt agcatgatcc tcttcattcg 900  
aatcatgcct aaactcaaata aaagaccccc gcccaaaaaa aaaaaaaaaa aaaaaaaaaa 960  
aaaaaaaaaa aaaaaaaaaa aaaa 984

<210> 173  
<211> 1194  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (3)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (9)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (12)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (13)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (16)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (110)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1153)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1175)  
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1192)

<223> n equals a,t,g, or c

<400> 173

```
cgnggcggna anntantggc cccccctaa aggggaacaaa agctggagct ccaccgcggt 60
ggcgcccgct ctagaactag tggatccccc gggctgcagg caaaagggan aattcaaaat 120
ttagaaaaaa cattagaaat gttaatatgg gatatttttg acttaagaca ttcagaaaaag 180
ttaatgtttt aacacgatat gtgattatag aattctattc atatatgtgt tcacatttat 240
acactttgct atactttgta ttataaata taattctgtt agataaataa gtgattcata 300
ttttgtcaaa actattttta aatttcaata tttaaaatat ttttgaatca ctggtttttcg 360
ttaagtggca tcatagrtga gatttgattc catgtagcat ataatttttag attgttcctc 420
tctcaccctt tttaaactcc ttcaagcatt gctattactg gggttgcctt tgggaaaact 480
tacttctaga tactaccata tatctgaaat agtagagggtg gatgttaata aaattcataa 540
aataatcatg tattactttt ttgattttac cactggaagg aaatacagtc atgtgcaata 600
taatgacgtt ttggtcattg agaccacat gtgtgacagt ggtcccataa ggatgttgct 660
gaaaaattcc tgttgctgcc tagtgacact gtagccatcg taacgccata gcacgacacg 720
ttactcacct gttcatggtg atgctggtgt aaacaaacct gtgctgccag tcatacaaaa 780
gtatagcaca atgacaatta tgtacagttt atcataattc ttgataataa atgactatgt 840
tacagggtta tgtattgatt ccactttttg tcattatttt ggaatgtact cctactaatt 900
ataaaaaaga aaagggttaac tgtaaaaaag cctcaggcag gtccttttagg aggcatcca 960
gaagaagaca ttgttaccat aggagatgac agctctatgt gtgttattgc ccctgaagac 1020
cttctagtgg gacaggatat ggaggggaaa gacagtgaca ttggtgatcc tgaccctgtg 1080
taggcctagg ctaatgtgtg tgtgtcctcg tttttaacaa gaaagttaa aaagtaaaaa 1140
aaaaraaaaa ggnctcgaga aaggggcaaaa gggcncttgg gcaaatggca gnac 1194
```

<210> 174

<211> 701

<212> DNA

<213> Homo sapiens

<400> 174

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gcttccactg atcttgccca tctgatgtta ccatgtttgt tgtaaaggaa gagactggca 60
ttctggacaa ctggcatcag agactggctg acatggagaa cccactctgt gtgtgctgag 120
grcagggcac tcaccagtgc agaggcagaa gtgggtgcct gtcctcgagg gttaacccgc 180
tttgccctcc gccacagcc cctccacctt ctaaaagctc aagagatgat cagactgaaa 240
caccgcacca tcttgctgtt ctgcctaggc tggaagacct ggcccaggtc atggaggccc 300
ctgctccact tgccagattc gcaggagtct tctgaccaga gctgtcgcac cttgctgctg 360
ccactggcac tgctgccatt ctcacctctt tgggggcctt cattgggtgcc acattctttg 420
tagccacctg ggctgtcagc catgagggaa ggacctcgt tttagtctcg gattgtaagg 480
tttccatctc tgtaccttct cacaagaag agtcagggcc caagcttaat gacctgtttt 540
ttaattcagg aaggtaaatc tcgttctctc gtcacaccgc gaattacagg tccatttgtc 600
ctcagtggga gttgatcttt gattcctaca aagaacaata aagtcgggtg aattcccata 660
aaaaaaaaaa aaaaaaaact cggggggggg ccccggtaac c 701
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<210> 175

<211> 1181

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (7)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (24)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (79)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 175

```
tgggganatt tccccgaacc ggcnttccccg ggtcgaccca cgcgtccgcg gacgcgtggg 60
ccaaagtgtt gtgtgtgtnt gtgtgagtgg gtgcgtggta tacatgtgta catatatgta 120
taatatatat ctacaatata tattatata atctatatca tatttctgtg gagggttgcc 180
atggtaacca gccacagtac atatgtaatt ctttccatca cccaacctc tcctttctgt 240
gcattcatgc aagagtttct tgtaagccat cagaagttac ttttaggatg ggggagaggg 300
gcgagaaggg gaaaaatggg aaatagtctg attttaatga aatcaaatgt atgtatcatc 360
agttggctac gttttgggtc tatgctaaac tgtgaaaaat cagatgaatt gataaaagag 420
ttccctgcaa ccaattgaaa agtgttctgt gcgtctgttt tgtgtctggt gcagaatatg 480
acaatctacc aactgtccct ttgtttgaag ttggtttagc tttggaaagt tactgtaaat 540
gccttgcttg tatgatcgtc cctggtcacc cgactttgga atttgacca tcatgtttca 600
gtgaagatgc tgtaaatagg ttcagatttt actgtctatg gatttggggt gttacagtag 660
ccttattcac ctttttaata aaaatacaca tgaaaacaag aaagaaatgg cttttcttac 720
ccagattgtg tacatagagc aatggttggt tttataaag tctaagcaag atgttttcta 780
taaaatctga attttgcaat gtatttagct acagcttggt taacggcagt gtcattcccc 840
tttgactgtt aatgaggaaa aaatggtata aaaggttgcc aaattgctgc atatttgcgc 900
cgtaattatg taccatgaat atttatttaa aatttcgttg tccaatttgt aagtaacaca 960
gtattatgcc tgagttataa atattttttt ctttcttgtt tttattttaa tagcctgtca 1020
taggttttaa atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga 1080
agtcacattc cacatctgtt tcaaaactgaa tttgttctta aaaaaataaa atattttttt 1140
cctatggaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 1181
```

&lt;210&gt; 176

&lt;211&gt; 489

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 176

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aatcgctgaa ccaggagcgg agttgcagga ggagaytcac cactcacttc agcctgggtga 60
cagrgggagc tctktcttaa aaaaaaaaaa aaaatcatct gtaaaataaa ttccgggata 120
gtcgttttgt tcaaggaaat gttttgtaaa ttgagctcac actatataat ctttattgtc 180
ctatccctgat gtataataca gcaggataaa ttacaccaag cgctatagtt ataaatatgg 240
catgaagtga actatggcct tttatttcct tccagtgtga acacagcagg tgtgagatgt 300
catcttgga gacaggcctt gcagaaatag gcctacatcc aaaatattat cttgtgactc 360
catgaacccat tcattaaccc tttgtatctt tgagtgaaaa ttttactcaa aagttgcac 420
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tggaagttcg aagaaattac ttgaaataaa aataaagatt tctatataga taaaaaaaaa 480  
aaaaaaaaa 489

<210> 177  
<211> 253  
<212> DNA  
<213> Homo sapiens

<400> 177  
aattcggcac gagcccgggw caggcacaca ggcccagggtg tgtagggccac agcagccgca 60  
gtcctgaaag sctgcaacac ccagacctcc aggagagacc agggccagga tgcctcgccct 120  
gttcttggtc cacctgctag aattctgttt actactgaac caattttcca gagcagtcgc 180  
ggccaaatgg aaggacgatg tkattaaatt atgcggccgc gaattagttc gsgcgcarat 240  
tgccattttg ggg 253

<210> 178  
<211> 393  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (214)  
<223> n equals a,t,g, or c

<400> 178  
aattcggcac gagagcttat tcattgaagg agtaagtggc tgctcactcc tttctgctga 60  
aactctttcc tgccttgta gcctagtgtg gaatgggagc agggtcacag tgaaagagct 120  
gaatctcccc acccaccac actgcagcag gctgcggctg gccgacttgt taattgccga 180  
gcaggaacac agcagcaagc tgcgggcacc cctnacttgc tacagttgat ggctgtgtgt 240  
ctctcccagg acctagagaa aacccgscct gtgtacgagc gcatactat cggcacattg 300  
ttcatgtcct tcatgaacgr gttaaactgct gtttcctggtg rttttcaaaa aaaaaaaaaa 360  
aaaaaaaaaa aaaâââââââg ctcgagggtg ggc 393

<210> 179  
<211> 465  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (377)  
<223> n equals a,t,g, or c

<400> 179  
attataagcg acgatggttc tgttgctatg aacacagcag tcggtccctg tcattgtcca 60  
cccaggagtg gccttgtaa ttccaagtgg catgtatcct ccctctgagc ttcatttctt 120  
caagatgctc tgggtggtgg gatgggagac catcctgcag ccctcctcag acctatcaa 180  
ttcattgaga gattgcaaag ctgaaagcac ctccggccac tcctgggaga cagacccttt 240  
ggtgatgaaa taaaccagtg acttcagagc ctatggtctc aactgtgctt gaaaaacact 300  
gtctctgaaa acaactttgt gattctccct gtcctctgtg gacaaaagca cataattctg 360

ctgttacggg tacttgnstc atacgagctt tcatgttcag catgcaatgg aatcatgctt 420  
gtccatgtga aataaatatg gctctctcgt gtccttaaaa aaaa 465

<210> 180  
<211> 532  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (68)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (140)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (496)  
<223> n equals a,t,g, or c

<400> 180  
cttgggttca gggaaaccag agattatacc aagacgggtc attctgcgcc atggaaaaca 60  
tccttggnat ttaattgctg ctgacaataa aggtaagggc tgggcttgga tacagcattc 120  
cccagataga gatgctagan aaagtgcata gctatggggt gcacagctct gtttgccttc 180  
atcattgtaa cccgtagaaa gaaaacttga gtaagggtcaa ggtttccatg ctttccttaa 240  
agtgtggagc cttttattcc atgaaaagggt tatacaaaaa tccagggttat caagcaaata 300  
aacaagcagt tcttactcag ataaacaaga tacaccccct caccctacct gctcaatttc 360  
tctttctcca ctcccccaaa cccacctcca ttgtagtcc tgcagggggt cccgtaagyt 420  
tattttgaaa atcactaggg tgggctkggg cgcgggtggst tcaggatgtw aatyccagca 480  
ctttggggrg ggcccnngga aggcagttca ttttggggtc aaggggtttt tg 532

<210> 181  
<211> 814  
<212> DNA  
<213> Homo sapiens

<400> 181  
aattcggcag agtaaaattc aaataattat aagcatttgg caaaaacaag agaaaagaaa 60  
cttgccatat ttacaagct gcaatttttag aaaagcttta acttaatgat agttttatca 120  
ttgttttctt gtcccaact tatccagggc catagaagta tgaatctaata taaaacagaa 180  
atgggaatta ttgcacagaa atgggaaata actaatttta aatcagtcaa attggcttct 240  
tattaaatac aataattctt atgraaatca tagtacccta ttttcagaca cagctgccag 300  
tttacacatt tctcagtatc ctgaarggra aaaagtatag ccccrcttat actatgtaaa 360  
attaccaata aaatatTTTT atgactacag attttgcatt tttgtttaca actattttaa 420  
gagttttatg ttgtatttag aatttcaacc tagaaaccac acagtactta aattctcctg 480  
gggtctcctg ctttctctta accatttgcgt taatatatat ctacctaaag gagacttctg 540  
aattgtaaat gaacttaaaa atagaatgtg gatgcaaaat atcacataag acatcatgat 600  
aacatttgaa gaaaaaataa aactgtagac cctaacagtt gtgatatttg gtggkttcat 660

gtggtaatgt aattttctgk ttaattacag tactttttac aggcacagtg gkactgtctt 720  
ttttgtaaga tgcyagtgt gaaatacaat taattgcata cagtaaaagt ctgtgattaa 780  
aacatttata tacctcaaaa aaaaaaaaaa aaaa 814

<210> 182  
<211> 317  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (315)  
<223> n equals a,t,g, or c

<400> 182  
taattcggca cgaggaacca ctgttcctta caggtaagcc agcatgatag ttagaccaa 60  
ccatcccaat agagacttgg catgcattca acaaacatcc cagggtgccta ggggtgtgcc 120  
agcaccattc caggagctgc cagtaaagga aacaagactg ctgtgtggcc aggtgcggtg 180  
gctcacatct gtaatctcag cactttggga atgccgaagt gagtggatca cctgaggtca 240  
ggagttcaag accagcctgg gccaacatgg tgaaacccca ttttttactt aaaaaaaaaa 300  
aacttggggg ggggncc 317

<210> 183  
<211> 243  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (169)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (181)  
<223> n equals a,t,g, or c

<400> 183  
tataaaagaa aaaaaaaggc tgtacaaaaa tttcttttrt acagagactg trtaaaagaa 60  
aaaaaaaaag aaatacmtgt gttcttaaaa ccatttgtat attttcattt ctagaccaca 120  
ctgtagctaa ttattgttat taaatgttaa gataatttaa gtatataana taagtattga 180  
nccgggcatg gtggctcacc cctgtaaatc tcagcacttt gggaaggctg aaggcggggg 240  
gtt 243

<210> 184  
<211> 1148  
<212> DNA  
<213> Homo sapiens

<400> 184  
aattcggcag agggggccata caaaaatttt ggacttgta ataccactta ctaaccgggc 60

ctgtaacact gggctaaaca aagtaagccc tgtttactca gcagtgtttg ggggacatga 120  
agattgccta gaaatattac tccggaatgg ctacagccca gacgcccagg cgtgccttgt 180  
ttttggattc agttctcctg wgtgcatggc tttccaaagg agtggagctg tragttcttt 240  
ggaattgtga acattctttt gaaatatgga gccagataa atgaacttca tttggcatac 300  
tgcctgaagt acgagaagtt ttcgatattt cgctactttt tgaggaaagg ttgctcattg 360  
ggaccatgga accatatata tgaatttgta aatcatgcaa ttaaagcaca agcaaaatat 420  
aaggagtggg tgccacatct tctgggttgc ggatttgacc cactgattct actgtgcaat 480  
tcttggattg actcagtcag cattgacacc cttatcttca ctttggagtt tactaattgg 540  
aagacacttg caccagctgt tgaaaggatg ctctctgctc gtgcctcaaa cgcttggatt 600  
ctacagcaac atattgccac tgttccatcc ctgacccatc tttgtcgttt ggaaattcgg 660  
tccagtctaa aatcagaacg tctacggtct gacagttata ttagtcagct gccacttccc 720  
agaagcctac ataattattt gctctatgaa gacgttctga ggatgtatga agttccagaa 780  
ctggcagcta ttcaagatgg ataaatcagt gaaactactt aacacagcta atttttttct 840  
ctgaaaaatc atcgagacaa aagagccaca gagtacaagt ttttatgatt ttatagtcaa 900  
aagatgatta ttgattgtsa gataggttag gttttggggg gccagtagtt cagtgagaat 960  
gtttatgttt acaactagcc ttcccagtaa aaaaaaaaaa aaaaaaaatt gtaaacaatca 1020  
cttatattac ttattgacg cttcatcacc agtacattat atgttgtaat atttatttac 1080  
ctgatcattt tgatcatttt ctgctttatt ttgctaataa actgtgatgt tacttctaaa 1140  
aaaaaaaaa 1148

&lt;210&gt; 185

&lt;211&gt; 1971

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 185

gtactttaac aattcmcart actatagtay tgggaattgt taaaagtaca ttcctctgaa 60  
agataagaat cactggcttc tatgcgcttc ttttctctca tcatcatgtt cttttacccc 120  
agtttcctta cattttttta aattgtttca gaggttgttt tttttttagt ttagattgtg 180  
aggcaattat taaatcaaaa ttaattcatc caatacccct ttactagaag ttttactaga 240  
aaatgtatta cattttattt tttcttaatc cagttctgca aaaatgacct ataaatttat 300  
tcatgtacaa ttttggttac ttgaattggt aaagaaaaca ttgtttttga ctatgggagt 360  
caactcaaca tggcagaacc atttttgaga tgatgataca acaggtagtg aaacagctta 420  
agaattccaa aaaaaaaaaa aaaaaaaaaa aaaaagcaaa actggggttg ggctttgctt 480  
taggtatcac tggattagaa tgagtttaac attagctaaa actgctttga gttgtttgga 540  
tgattaagag attgccattt ttatcttgga agaactagtg gtaaaacatc caagagcact 600  
aggattgtga tacagaattt gtgaggtttg gtggatccac gccctctcc cccactttcc 660  
catgatgaaa tatcactaat aaatcctgta tatttagata ttatgctagc catgtaatca 720  
gatttattta attgggtggg gcagggtgtg atttacttta gaaaaaatga aaaagacaag 780  
atztatgaga aatatattga ggcagtacac tctggccaac tgttaccagt tggattttct 840  
acaagttcag aatatattta acctgattta ctagacctgg gaattttcaa catgggtctaa 900  
ttatttactc aaagacatag atgtgaaaat tttaggcaac cttctaaatc tttttcacca 960  
tggatgaaac tataacttaa agaataatac ttagaagggt taattggaaa tcagagtttg 1020  
aaataaaaact tggaccactt tgtatacact cttctcactt gacatttttag ctatataata 1080  
tgtactttga gtataacatc aagctttaac aaatatttaa agacaaaaaa atcacgtcag 1140  
taaaatacta aaaggctcat ttttatattt gtttttagatg ttttaaatag ttgcaatgga 1200  
ttaaaaaatga tgatttaaaa tgttgcttgt aatacagttt tgcttgctaa attctccaca 1260  
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tatatgtttt gtcccagttg tatagtaatg tttcagttca tcatccagct ttggctgctg 1380  
aaatcataca gctgtgaaga cttgcctttg tttctgttag actgcttttc agttctgtat 1440  
tgagtatctt aagtactgta gaaaagatgt cacttcttcc ttttaaggctg ttttgtaata 1500



tatataagga ctggaattgt gtttttaaag aaaagcattc aagtatgaca atatactatc 1560  
tgtgttttca ccattcaaag tgctgttttag tagttgaaac ttaaactatt taatgtcatt 1620  
taataaagtg accaaaatgt gttgtgctct ttattgtatt ttcacagctt tgaaaatctg 1680  
tgcacatact gtttcataga aaatgtatag cttttgttgt sctatataat ggtgggttctt 1740  
ttgcacattt agttattttaa tattgagagg tcacgagttt ggttattgaa tctgtttatat 1800  
actaaattct gtaaaggagg atctctcatc tcaaaaagaa tttacatacc aggaagtcca 1860  
tgtgtgtttg tgtagtttt ggatgtcttt gtgtaatcca gccccatttc ctgtttccca 1920  
acagctgtaa cactcathtt aagtcaagca gggctaccaa cccacacttg a 1971

<210> 186

<211> 366

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (349)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (353)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (366)

<223> n equals a,t,g, or c

<400> 186

aataacaatg taattathtt yggcakascc ttgcctgact tctgaggacc tactaagtc 60  
tagttcttagc cttttagtaa tgggtcaactt ctttcatcaa ggctttgggt tcattactgg 120  
tgtctgaatt agttccactc ctactgtgac ccagatttta gtttttatta tggatttttt 180  
cttcaaactt gtttatttta tattaagttt tcatttttgg cagcatatgg atgattttat 240  
ttttaataat catatctctt agtaaaactaa tggktaaata atattaaagt ataagaggct 300  
aaaattgggc caggtgtggt ggctcacgcc tgtaaattccc cgcactttng gngggctgag 360  
gcagggn 366

<210> 187

<211> 350

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (341)

<223> n equals a,t,g, or c

<400> 187

aattcggcac gagaaagagt tgccaaaaat aaaaaatatt attgtaaggt aaaaaatttc 60  
ataaatgggc ctaatagtgg gatggatata actgaaaact aagatggtga tgaggaagac 120

agtcaagaat aaatataacca aagtagcaaa gaaatacctg tgcaagtaga atagcttgct 180  
tcaaacagat gagatttgtc ctcccaacat caaaacatat cacaaaacta cagtaattaa 240  
gtccctttga ggccagcact gactgggrta agcaaatagr taaatgggat gtaacaggcc 300  
ttatttcaac taatagggtg ttcaccactc ctagttggtt ncctgtttcc 350

<210> 188

<211> 375

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

<400> 188

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gaaaaaacttt gctattaata ggtgcaaagt ccatttcagg tataattggt aaggaactga 120  
gtgcactcat ggggaagaaac cttgttttgt tttttgttcg cttttcttct tatccccttt 180  
tctcagtttt atggctggag acatgattta ttgcagccat ccactctggg ggctcatcca 240  
tcacacccgg gttgctagga gattgtggca gcagctgttt gctctgaatc agacagaaaa 300  
gttgtcaatc atcaaaggca ggtgaatagc attagaaaca cgstattgtc agacggaata 360  
attaatcaaa gagag 375

<210> 189

<211> 365

<212> DNA

<213> Homo sapiens

<400> 189

tcagacaaaa attctgtgga cagctgcgag gaattcactt ttcctctgaa actcatagcc 60  
ctctcctgaa tacatatggt gtgcactaac acttgccatt atctgaaact catagcccta 120  
tcctgaatgc atatgctgta ggttaccact tgccattgga ggtcttggag gccatatacct 180  
gtaggagcag ggtagccatg ggacttaact actattatcc cccaaaaatg ttgtgtttgt 240  
gaattcacct gactgaggaa tccctaawta ttcatacagat atttcaaaaag gttccatgtt 300  
ccmaagragg rggttttagta ttgatttttg gttgggtttg ttttatttga ggcagtgggg 360  
gatga 365

<210> 190

<211> 817

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (778)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (791)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (801)

<223> n equals a,t,g, or c

<400> 190

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ggcacgaggt taattttgaa acttatgctt aagattttaac cagggcagag gcatatttca 60
gcataaataa tggtgccatt ataaactctt atccttccta tctcaacagg aaatgagcaa 120
ttattgcttc atgcttcaat gcactgtttt aaaatactgt ttaatttggt aaaggtgtga 180
actgtttaat ttatctcaca cgttttttta aacaaatact gattggacat gcgctgcacg 240
ccaggctttg ggcttggtac ctcagggttc tcacagggga ggctggaagt ggaaacaagc 300
acatgtgtaa ctgttggtga gacagtctaa ttggtagaaa atcagcgaac aaagaagcag 360
acaaattaga aaatgaacgt aaggtgatgt gctaaaaaga gggtagccat tatgtcagtg 420
tccttcagag aaggtagcac tccctgagac cggaatggca gaaagaagtc catcctgcct 480
agcccagctt ggacttggtg agaagcaggc tgataaaaga accaaatatt gtacattttg 540
aagaagttgc ccgctgactt gagagagagg tgttgcgttt caggtgctga atgtccttat 600
aaaaagttga atatttcgag catctctatc aatacatttg aatgctgaga gcttttcctt 660
ccagaagctc atgtcatttt caacacacac ttctatttac ctttatgtag tttctaaaaa 720
ttgaaaacca gaattggagg tttttttaaa aaaaaaaaaa aaaaaagccg aggkgggnaa 780
agtamaaatg ngcctkwgcc ntttcctttc cccgtcc 817
```

<210> 191

<211> 590

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (569)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (573)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (577)

<223> n equals a,t,g, or c

<400> 191

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aattagaaag tccaaagtcg acccaaattg atattatggg cagaagtatg gtagagcaat 60
ccaaacaatt gggattatga atgggaaggt tgtaaaccce atattatttg cgtgtacgaa 120
ggaagaatcc tgtgacaagc acttactcca aaatgagtct acagttatac caagtggata 180
gtagaactta tctactggat ttccgtagta ttgatgatga aattacagaa gccaaatcag 240
ggactgttac tccacagaga tcgggatcag ttagcaacta tcgatcttgc caaaggagtg 300
attcagatgc tgaggctcaa ggaaaatcct cagaagtttc tcttacctca tctgtgacct 360
cacttgactc ttctcctggt gacctaactc caagacctgg aagtcacaca atagaatttt 420
```

ttgagatgtg tgcaaactta attaaaattc ttgcacaata aacagaaaac tttgcttatt 480  
tctttttgcag caataagcat gcataataag tcacagccca atgcttccca ttgtaatcca 540  
agttatacct aatttttaac cgggggttng ggntttngga ttgcaatttg 590

<210> 192

<211> 308

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (285)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (302)

<223> n equals a,t,g, or c

<400> 192

ggcagcagaa ataaccagct gacagcatga cgacaggata aaatccacac ataccattac 60  
taaccttaaa tgaaaatggg ctaaattgctc ccattgaaag acacggggca agctggataa 120  
agaaccaaga cccactggag tatgctgtct tcaagaaacc catctcacat gcggtggcat 180  
acataggctc aaaataaagg aatggagaaa aatatttcaa gcaaatggaa aacagaaaaa 240  
agcaggtgtt gcactcctac tttctgacaa aacagrcwt gcggnttaaa ggткаaaaaa 300  
gnggaagg 308

<210> 193

<211> 343

<212> DNA

<213> Homo sapiens

<400> 193

aattcggcac gaggcctgga gaacctatgg tgattttcct gggcctgctc attgcccacc 60  
attgaaccaa tcagcacaca tgtcctctct tctgagccca taaaaaccct ggactcagcc 120  
agactcacac agacatcagg actaccagct gcgggaagga gctagccatc tcaggtctcc 180  
ttgaatcatc cagatgacct gcctgtggaa aggagctacc catcacaggt ctacttcttg 240  
atgagaactg gacattcttg ggatgacttg cctgcagaaa ggagcgacat attttgggtc 300  
tyctgagagc tgttctgttg ctcaatgaag ttccttcattg cag 343

<210> 194

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<400> 194

```
aattcggcac gagaggtgat atacatgata cattctcaag agttgcttga ccgaaagtna 60
caaggacccc aacccttttg tcctctctac ccacagatgg ccctgggaat caattcctca 120
ggaattgccc tcaagaactc tgcttcttgc tttgcagagt gccatggtca tgtcattctg 180
aggtcacata acacataaaa ttagtttcta tgagtgtata ccatttaaag aatttttttt 240
tcagtaaaag ggaatattac aatgttggag gagagataag ttataggagag ctggatttca 300
aaacgtggtc caagattcaa aaatcctatt gatagtggcc attttaatca ttgccatcgt 360
gtgcttggtt catccagtgt tatgcacttt ccacagttgg acatgggtgtt agtatagcca 420
gacgggtttc attattattt ctctttgctt tctcaatgtt aatttattgc atgggtttatt 480
ctttttcttt acagctgaaa ttgctttaaa tgatgggttaa aattacaaat taaattgtta 540
atttttatca atgtgattgt aattaaaaat attttgattt aaataacaaa aataatacca 600
gattttaagc cgtggaaaat gttcttgatc atttgcagtt aaggacttta aataaatcaa 660
atgttaacaa aaaaaaaaaa aaaagtcgac 690
```

<210> 195

<211> 237

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (222)

<223> n equals a,t,g, or c

<400> 195

```
tggaatctgg ctagaaagca gtaataaaca gaaatctgta tatgtttgga aaaagtaaata 60
ctcaatggaa atcagaaaaat attttgaact gaaatttggt gatgaaaata ctatatatgg 120
aaacttgtagg gatataattat agctaaagct gtgttagagg aaatttagag ccttacataa 180
atacatatat tataaaaggg aaaatattaa aagttaatgg anctaaggca tccatct 237
```

<210> 196

<211> 267

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (46)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (261)

<223> n equals a,t,g, or c

<400> 196

```
cccagagtaga gacacatctt agtatgtact cagctttggg caaaanatag atggcggtcac 60
ctttcttcgc atgctgagct ccatagtaga ttgaggactt gggttggaag cagtaaggta 120
attgccaaag cccattatc aggtgggtac acatagagct tttgggagga acagatgcca 180
taagtatatca gtttagtctt accttctctt tagagggaaa agaagttgga gaaagcgtct 240
gcagctaaca aaaggtactg nccttgg 267
```

<210> 197  
<211> 443  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (406)  
<223> n equals a,t,g, or c

<400> 197  
attgccaatg ataaaatttg aactttcaag caaaaatgca aattttggaa aatgtgttat 60  
ttctgccact gagaacataa cagcatacca acacttttag actttttact tttatattgt 120  
ataatgaatg catcaacatt tggatgatct gtattacagg tgaaccaaca ttttccagta 180  
ttagtggtgg ggaatgaccg tgtcwgaagg cttgaccagg atggggatag ctcaaggagg 240  
caggatggct cattgcttat gtcttcttca ggaacacaat gaagtaggtt gagtttccag 300  
gatttgggcc ctgcattggg gatggttgga ggaaaggcca aaaacctagg ttcttycags 360  
ccatgggctt taaaaaacgt ggtacttttt aaggaacagg gttcanggca ggggtgtttt 420  
tggggctagg gttaaggaaa atg 443

<210> 198  
<211> 208  
<212> DNA  
<213> Homo sapiens

<400> 198  
gaaaatgtgc ctttttcagt tgtcacagmt ggggaatgtt actggcatcc ggtgggtaaa 60  
ggctagggat gctgctagac attctacggt gcacaggaca acccccacaa caaagaatta 120  
tctagcccaa aatgtcaaca atgctgaggt tgagaagycc taggaaacta aaacagtgtg 180  
gggggttgta atttattgga aaccatgt 208

<210> 199  
<211> 258  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (160)  
<223> n equals a,t,g, or c

<400> 199  
attggttttg gccatgacac tgattttcctg gaggcaaggt gctgcttcya ttcaggaatg 60  
gggggtgcatg actgccctga gcagccaagg agccaattct ttaggaggct gagggccatt 120  
tcagctcaag ctttcacggg gcagggccaa aagcaacttn gaggggtggg tggagcatct 180  
tccactgcag cttggcccca agaaataggw tgtagcagca gytacgcttg tgggatggtg 240  
cgcaacaatt tggggggg 258

<210> 200  
<211> 893  
<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (870)

<223> n equals a,t,g, or c

<400> 200

```
aggggtagtt tccacaatct aatccgggtg ccatcagagt agaggagta gagaatggat 60
gttgggtagg ccatcaataa ggtccattct gggcagtatc tcaactgccg ttcaacaatc 120
gcaagaggaa ggtggagcag gtttcttcat cttacagttg agaaaacaga gactcagaag 180
ggcttcttag ttcattgttc ccttagcgcc tcagtgtttt tttcatgggt gcttaggcca 240
aaagaaatat ctaaccattc aatttataaa taattaggtc cccaacgaat taaatattat 300
gtcctaccaa cttattagct gcttgaaaaa tataatacac ataaataaaa aaatatattt 360
ttcatttcta tttcattgkt aatcacaact acttactaag gagatgtatg cacctattgg 420
acactgtgca acttctcacc tggaatgaga ttggacactg ctgccctcat tttctgctcc 480
atgttgggtgt ccatatagta cttgattttt tatcagatgg cctggaaaac ccagtctcac 540
aaaaatatga aattatcaga aggattatag tgcaatctta tgttgaaaga atgaactacc 600
tcactagtag ttcacgtgat gtctgacaga tgttgagttt cattgtgttt gtgtgttcaa 660
atttttaaat attctgagat actcttgtga ggctactcta atgccctggg tgccttggcc 720
agtttttagaa ataccagttg aaaatatattg ctcaggaata tgcaactagg aaggggcaga 780
atcagaattt aagctttcat attctagcct tcagtcttgt tcttcaacca tttttaggaa 840
ctttcccata aggttatgtt ttccmgcccn rggsatgggg ggtcattggg gcc 893
```

<210> 201

<211> 503

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (480)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (493)

<223> n equals a,t,g, or c

<400> 201

```
aaactcactg gctgaaggag gaaatttttag aaggaagcta ctaaaagatc taatttgaaa 60
aactacaaaa gcattaacta aaaaagttaa tttycctttt gtctgggcag tagtgaaaat 120
aactactcac aacattcact atgtttgcaa ggaattaaca caaataaaaag atgccttttt 180
acttaaacac caagacagaa aacttgccca atactgagaa gcaacttgca ttagagaggg 240
aactgttaaa tgttttcaac ccagttcatc tgggtggatgt ttttgagggt tactctgaga 300
attttgctta tgaaaaatca ttatttttag tgtagtccac aataatgtat tgaacatact 360
tctaatacaa ggtgctatgt ccttgtgtat ggtactaaat gtgtcctgtg taccttttgc 420
acaactgaga atcctgcagc ttgggtttta tgagtggggg catggaataa ttatgggggn 480
atgtaaaaaa aanaaaagag ggg 503
```

<210> 202

<211> 438

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (344)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (391)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (412)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (425)

<223> n equals a,t,g, or c

<400> 202

```
catgtgatca tttatgtgta tacagagtaa ttataaaatg tttgctgtgt acaaaactat 60
tttattagtg gattttaaat acattaaatg ggtatatata gtatatatga tctaggagta 120
tatataggga actctaacaa atttataata tttatttttt aaaagaatga ccaaacatgg 180
caaaatatta ctatgagtta gatctggaca gtggatgcaa gggcttcat tatgttattg 240
tctgattttg tggtgaactt atttcacaat gcagaggaaa aaatagtctt ggctcatcct 300
tagatatcac tggtcataga gccagtcacc aggacgatcc cacnttttat ggtggggcag 360
gcattggggag tccagagccc atcacccaac naccaagtga cgggtgggga cncctggtgag 420
cctgnaaagg gggccatc                                     438
```

<210> 203

<211> 876

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (778)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (786)

<223> n equals a,t,g, or c

<220>

<221> misc feature



<222> (804)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (817)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (835)

<223> n equals a,t,g, or c

<400> 203

```
cggcgatata tactaaattc gcgcgtgact tcatgagtag tagtgaatac aatcttcctg 60
cttctaagct tgtgtctact agaatgtctt cccctaaaa gatataattg aatgtttccc 120
atgtttcttc tagtacttta atgcgtttca ttttcataty gaaatcattg atctacttct 180
agtttykgat acaamatgtg agccaggaaa cccagttttt aaatttcaaa tagctgtcca 240
ggtgtccctg cacctcttat gcatgagccc tcgctttgtg ccaatgtgga gtgcccgcct 300
gtcacacgt gcccatgtgg agtgcccgcc tgctcatgtg cccatgtgga gtgcccgcct 360
gtcacacat gycgatgcgg agtgcccrcc tgctcacaca tgcccatgtg gagggtccgc 420
ctgctcacac gtgcccattg ggagtgcccg cctgctcaca cacgtgtcca tgtggagtgc 480
ccacctgctc atgtgcccatt gtggagtgcc cacctgctca catgtgccga tgtggagtgc 540
crcctgctca cacacgtgcc catgtggagt gcccgctgc tcacrygtgc cgatgcggag 600
tgcccgctg ctcacacgtg ccgatgcgga gtgcccgcct gtcacacgt gccgatgcgg 660
agtgcgcgc tgctcacacg tgcccatgcg gagggtccgc ctgctcacac gtgcccgcgc 720
ggagtgcgcg cctgctcaca cgtgccgacg cggagtgcgc gcctgctcac acgtgccnac 780
gcggantgcc cgctgctca cactgccga cgcggantgc ccgcctgctc acacntgccc 840
atgtggagtg ccgcctgctc acgttgccga tgtgga 876
```

<210> 204

<211> 1504

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1468)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1494)

<223> n equals a,t,g, or c

<400> 204

```

tgtnytccmt gtgcnaaac cygcygcaga ctggggcccy tctcagttaa ttgggtttca 60
caagcaataa tttctccaca acaaaaacca caacttgaag tgagttgaaa agagatcaat 120
agtggaaaca gtcgcctcag tactttttct ttctggattt catctctaga aatttgaagt 180
gtttgagaca gagtccaccc tttgtgcaag gcgagaacca atgaatggac tccttgtgtg 240
aattattgca tcttcttcca aagcaggttc atcaagactt tcacagagat tcatttttgt 300
tgagaagtaa gggttaatag gaggatagaa tttggatcca aatctagtga taaaagtgtc 360
caagcaatca aaaagtaaga tatttttaggg acataccaac atcttccctt tctgctaatt 420
tcatgtcca aagatatrgc aaaaaaaaaa atcataaaaa gtgcttttgc cctacttgtg 480
ttctagtttt cccatggcag aattttgtaa ttacatccag aatatagtgt atattttgtt 540
cctcaaactt tattacattg gatggatatt gttgractgg ggcactgggt cctatatcca 600
aggctctttc ctatcaacgt gtctgtccac gatttgttgt gtttaaagct tcattttgaa 660
aatcactgt cccctgtgg gtagtgactg tattgttttg ttcatgtcta tgtgggacac 720
attgcatcac atggcaaacc aactctctgt ggatgtgaga taagtactta taaaaccagc 780
ttgaaaacat cgtcttatgt attatgtcat cctgcatcat aatgcaatta tgtgtatcat 840
aacatgctca tttaaaaaaa gagaaaccag caaattcatg ttgtgccata gaagaatgta 900
ctcagaactt tgtgtgtgta aacgatgaga acagaccacc tttaagatac ccacctgcca 960
cttaaaatga cttagttata attagtagta gtctagacgt tgttcttggt gtgtgggggt 1020
caattctaac gtcattgtct tttgaataaa tctctcagtc atatttgaaa aaaaaataca 1080
tggaataaaa gaaaaatata atctttggcc aaatcaagca ggcactcttt ttcttttctt 1140
tgacgtttag ctcatataac gtggtgattg gatcacgaga tctgtccgtg tgaaaataca 1200
gaaacatcct ttagtttaca aaacagttat tctaggcttg aagcctctgg aacagcaaat 1260
tgaatagatg ggctgcatct gatttgcttt atggatgtaa ttttacaata cactcttggt 1320
tctctgaccc cagggagtta agagtgccca gaggaggtcc tacacattaa aggataaagc 1380
ccccagtgta tgctggcagc aaatgtgttg agttcttaaa tcttccattt ggktttctgk 1440
ttcaggtttt taattgcaat ggattttntt tcccccgttt tttcttaagg gccncatttt 1500
ccca

```

1504

<210> 205

<211> 525

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (47)

<223> n equals a,t,g, or c

<400> 205

```

agtcttggtc ctaatgcact tgtccacatc gtatgtcatt acaagtnctt ccccttcttt 60
aaccagaggg catagaattg gggcttagtg tgtcctaaac aagctaaaag attccacctg 120
tagaatcata aaatgagagt ctacacagat ttcatgctac tttttgtctc ttcagcaagg 180
aacggttgct gggattgtca gtgaccaggc atgtctggat agcttcacac atacacataa 240
tgcccgggtc acctcagccc acacatgttc tagaagtagc cacttgccaa gtgtcagtgt 300
tcagtctaaa cagcaaatgg gtttaaccaca tgaacagcac tggcccatgt gagaatgggt 360
tgaaggcctc ctttgtacca ttttccattt ctctaactca catgtgtagt ctcagcactg 420
cagaggacag atttgtttgt gccctctgag actggttgggt tggttgggtg gttagttttg 480

```

ttttatgaat cctaaaattt gtcttggsc ttttaaaaaa aaatt

525

<210> 206

<211> 2494

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2471)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2485)

<223> n equals a,t,g, or c

<400> 206

```
caaagaaaca ttggaaacaa tttctaataga agaacaaaca cctcttctta aaaagattaa 60
cccaaccgaa tctacttcca aagcagaaga aaatgaaaaa gttgattcaa aagtgaaagc 120
tttcaagaaa ccattgagtg tatttaaagg ccccttacta cacatcagcc cagcagaaga 180
actgtacttt ggaagtacag aatccggaga gaagaaaacc ttaatagtgt tgacaaatgt 240
aactaaaaat atagtggcat ttaagggtgag aacaacagct ccagaaaaat acagagtcaa 300
gccaagcaat agcagctgtg acccggtgac atcagtggtg atagttgtgt ctccccatgg 360
gggtttaaca gtctctgccc aagaccgttt tctgataatg gctgcagaaa tggaacagtc 420
atctggcaca ggcccagcag aattaactca gttttggaaa gaagttccca gaaacaaagt 480
gatggaacat aggttaagat gccatactgt tgaaagcagt aaaccaaaca ctcttacgtt 540
aaaagacaat gctttcaata tgtcagataa aaccagtgaa gatatatgtc tacaactcag 600
tcgtttacta gaaagcaata ggaagcttga agaccaagtt cagcgttgta tctggttcca 660
gcagctgctg ctttccttaa caatgctctt gcttgctttt gtcacctctt tcttctattw 720
attgtacagt taaagaagtg gtgccgggta ggaaccacgg ttccttcgtc cattagttgg 780
aaaagtaaca gacctaaac tctaccaagc tactaaaamc attgcacatc tgtgcttcc 840
aaaaggaaat atgcagcacg tggaggggaa cacatacatg tcttgaaaat aaactgctag 900
aataaagaaa tgctggagaa attgattata agagactata gctatttagt aaagtaagta 960
aaggcatatc cattgtgtaa attaatagtt taaatataat ttatttttct cttttgatct 1020
gaatactttt aaagcttaag ttttatcgtg taaatacatt agctaaactg aaaagtataa 1080
gtaacatgct ttgttgacag caaaaaatgt aatctgcttt tttatgacag aattattata 1140
gctgagctga cttactagct tttctatact atgtatatag aagaacatgt atattgagaa 1200
agaaaacata cttatataga ggaatttatg taaccatgac tttgtaattt tgagaattcc 1260
tcccagtgat ggtcagtatt cttttggaat gtaaaccgat ttaatgcaa accaccttaa 1320
cctttgtttc tcagtgttcc ttaacagcct gccttttatt aatctcaggc ttttttatga 1380
acactctcat ttcagtagaa tttggaaaac taagcgtggt tggaatttct ttgaattctg 1440
ttagtaatgc ccaaaagaaa agtctcaagc agtcccccta tccagtcatt tttatggagt 1500
ttcatgttgt cactatagc tggacactga accttttgcc taatttatta taaaggcctg 1560
accctctatt gtcccatctt ccccccatc ccagagcaga ggagtctctg tggaccatga 1620
attgcactgt ctccctcctc atttctaaat gaaaggtatt agatataaat ttttttgaaa 1680
ggttagttgt ttgagatgct aagcaggata ataaatttag attttaaaat gttccctgta 1740
aaagtcagcc catgacaagg aaatttacia aatactagag tatctagaag ggtgaaaaca 1800
aaaaaaaaawa aaaraaaca cagacgcca ggtgtcagct ctccgtttaa agaatgaaa 1860
atgtaactca tgatgatctg tgaaaccttc aaactaggac caattgactt acttgatatt 1920
ctgcctttga tatggtagta cccaccgggt attcctaaaa tcctaaaaag atacacctg 1980
```

cagtagcaga ggcaatgaca tgagtttggt ttctcattaa tatgaccagt ttgggtctat 2040  
gttggttcac atgtacatct actttatatg aaagaaaaaa cagttgtctg cctgtaaaat 2100  
gttgagtttc gattgagcca tgtttgaga ttttattact attctgaagg gtagtggtgt 2160  
tggttttcat cttcaagaag ttgattccaa aactgagtta tgaagaatga tataacagtt 2220  
ccttcaaaat tggcctagga aataaaacct taaaaggaca ctgggtgtgct actttgtctt 2280  
aatttgggct tttctgtttc agtttgccac ctccagctgt gaaatggact gcagtcacc 2340  
ctaagtactg tgcacagtat ctccctgtgt gtgtgcacag tggcttcccc ttacatggta 2400  
gatttttggc cttaataata tctaatacca aagtagttgt gtatgttttc tgttccttgg 2460  
caataaaatg naggaataat ttagnccaaag attg 2494

<210> 207

<211> 880

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (864)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (865)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (868)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (878)

<223> n equals a,t,g, or c

<400> 207

gggcacgagc tttgacccat tcaaggatgt ctctgcctgg agaactagat cctgactcag 60  
tggcagcata gggtctcccc caggggtggtg ctgaacttca gtcagaagc agcctggacc 120  
ccatcttacc tccagataag gtgttttagg tactctgttg ccagtgttag tgcaacttag 180  
tttaaaaaata gaggacttgt tcacagtatg ctctaagtct cacactggag ttttgtgcaa 240  
cataaagtag gtgattttgg agcagagcga agtctagaaa ttgaccttaa attatttgtg 300  
gtactctaga gaacgtggta tgtgtatgtg tgtatgtgtg tttgaatata ggaactagtt 360  
cattgaacgt tagattgttc taagaccaga attagattaa aaatgcataa catattaagt 420  
attaaaaagt gtttatattg tatatgaatt ttttgcggtg agtttagctt ggcatttttag 480  
gttttaattg atgcttaatc tgtaaaaatg atgtactgta ttttaaagta ttctaattgt 540  
gcttttttgt accatcttca gtatgaaaaa tgtcagtatt tagttccttt ctcaaggaca 600  
attagatttt tattgacatt gttttccccc ttaactcatg taattagtca tagcaaccaa 660  
gagtcaagag agtgattacc agccaattaa gaaaaatgtg accaagcaga ttgcagagta 720  
caataaaacc atcgtggatg ctttacatag catcagcgga aactgagttt aagtccactg 780  
aaagtctcta aggaagtatc ctcttgctgc taaacttggg acaagttgac taccaaaaaa 840  
aaaaaaaaaa agccgaggkg ggcnngtnc aagggccttg 880

<210> 208  
<211> 640  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (5)  
<223> n equals a,t,g, or c

<400> 208  
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acaggctaca tcaaggcctg gccccagcag gtgtttccct cccagatgat gacccagcct 120  
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<212> DNA  
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<222> (85)  
<223> n equals a,t,g, or c

<220>  
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<222> (92)  
<223> n equals a,t,g, or c

<400> 209  
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tgaggaaagt gaggtcaca gaagttaatt ggcccagggg cccacaacta gtcagtgcag 180  
aggtgggggra acataaccag atttgttcgg catgkaactt gtgccaaatt tcctccaaag 240  
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act 303

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<212> DNA  
<213> Homo sapiens

<400> 210

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aaatgttttg aaaactttga atacttaaaa atggcaggtg tagtattgca ctttgctagt 180
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gagcatatat tatggaacac agcaatcagg atgagtgaaa aattgatttg cagctgacct 480
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aagaatggta cctaccatca gtgaatgacc tggtgcagtg ctttcattga agtggtcttc 660
gttccctcag caatatgatt gtgatgactg aaaaagggaa actgtgccac tatttgtacc 720
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<220>  
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<222> (3085)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (3114)  
<223> n equals a,t,g, or c

<400> 211

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 <212> DNA  
 <213> Homo sapiens

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 <222> (613)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (660)  
 <223> n equals a,t,g, or c

<400> 212  
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 aatttataaa ttaattattt tacataatta aagaagttaa aaactattaa cattaaataa 240  
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 ttacctaaag tcaattggct ggtaagaggg agagatgcaa aattctccag ctctgaactt 420  
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<210> 213  
 <211> 563  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
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 <223> n equals a,t,g, or c

<400> 213  
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 gacagagcgg aaaacataaa gaagtacttg gaccaagaaa aaagaagatg gaaaatatca 420  
 caagcaaatt aaaatagaan aaaatgcaac aggtttcagt tatgaatcac ttttctcgga 480  
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&lt;210&gt; 214

&lt;211&gt; 2636

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 214

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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1821)  
<223> n equals a,t,g, or c

<400> 215  
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<211> 3127

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 216

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cattwttttg aatcaaagtc ctccgtttat taacagcaat acccacatcc tcttcatagc 1980
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gctgacaggt ccatgctgct ccagatttta ctttttcttg cccccagttt tttgggtcat 2880
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agccgta 3127

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<210> 217  
 <211> 1529  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (57)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (458)  
 <223> n equals a,t,g, or c

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<400> 217
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ccaggagggc ctcatctgca cctgggmccg gccgggcaag gcgttcacag acgaggagac 180
cgaggccag acaggggaag gaagttggcc caggtcaccc agcaagtcag tggtagaggg 240
catctcctcc caaccaggca actccccgag tggcacagtg gtgtgaagcc atggatatcg 300
ggccccccca accccatgcc cccagcctcc tagccataac cctccctgct gacctcacag 360
atcaacgtat taacaagact aaccatgatg gatggactgc tccagtcccc ccacctgcac 420
aaaatttggg ggccccccag actggcccg acacggnga tgtaatagcc cttgtggcct 480
cagccttgct ccccaccac tgccaagtac aatgacctct tcctctgaaa catcagtgtt 540
accctcatcc ctgtccccag catgtgactg gtcactcctg gggagasact ccccgccct 600
gccacaagag cccaggtct gcagtgtgcc cctcagttga gtgggcaggg ccgggggtgg 660
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tgttaaatta tggaagcccc tcaggttcct cctgtcccg cagacctctt atttatacta 780
aagttccctg ttttctcagc ggtctgtcc ccttcggagg agatgatgta gaggacctgt 840
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ttggggtctc gtttgcccag ggagggttg gctccaccac tttcctccc cagcctttgg 1440
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<210> 218

<211> 1100  
<212> DNA  
<213> Homo sapiens

<400> 218  
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ttgttaaagg ggcagtagta ctttgtggga gccagttcac ctcttttcct aaaatttcagt 180  
gtgatcaccg tgttaatggc cactactagct ctgaaattaa tttccaaaat ctttgttagta 240  
gttcataccc actcagagtt ataatggcaa acaaacagaa agcatttagta caagcccctc 300  
ccaacaccct taatttgaat ctgaacatgt taaaatttga gaataaagag acatttttca 360  
tctctttgtc tggtttgtcc cttgtgctta tgggactcct aatggcattt cagtctgttg 420  
ctgaggccat tataattttaa tataaatgta gaaaaaagag agaaatctta gtaaagagta 480  
tttttttagta ttagcttgat tattgactct tctattttaa tctgmttctg taaattatgc 540  
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ttaatgcatt ctgagttcac agagcaaat aggagaatca tttccaacca ttatttactg 720  
cagtatgggg agtaaattta taccaattcc tctaactgta ctgtaacaca gcctgtaaaag 780  
ttagccatat aaatgcaagg gtatatcata tatacaaadc aggaatcagg tccgttcacc 840  
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aaaaaaaaa aaaaaaactc 1100

<210> 219  
<211> 1792  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (475)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (476)  
<223> n equals a,t,g, or c

<400> 219  
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ggcggcgsgg accgcmtgg cgggaccggc gggccgcgcc tgggtgatcg ctctttacca 180  
gtcacctct cgcgcacat gtttggagga tttaaagtgc ctgtatgctc aaaatttcta 240  
tcctcagatg aaatggattt gcactttgta atgtgtttta caaagccacg aataacctat 300  
aatgaggatg tactgagtaa agatgctggg gaatgtgcaa tatgccttga agaattgcag 360  
caggagagata ctatagcacg actgccttgr ctatgcatat atcataaagg ctgcatagat 420  
gaatggtttg aagtaaatag atcttgccct gagcaccctt cagattaagc gtcannttcc 480  
tgttttatag gttttcttgt cttgacaaga tgcttgaaaa accaagagga yatgaaaatc 540  
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gctgcacatc ccttaatagt catctacata ggtaatactg ataaacattt tgtattcaga 780
cgccaaagt t aactgattta aaagttgatt tactttttat taagttctcc agagctgcac 840
aactagttat gttttgattt gttttgtttt ttaatttggg gtctctttgt tttccccaac 900
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aactttaatt ttccagataa tctggaggtt agcatttgat aaatgatttt ttaaagtaga 1620
tatgaagatt ttgttaattt ataatttatt catgtgttat tactgtaatt gaaaatgtta 1680
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aatattcccm cataataaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa 1792

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&lt;210&gt; 220

&lt;211&gt; 1310

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 220

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gacagcgagc agaccctgca gaaccaccag cagcccaacg gcggcgagcc cttccttata 300
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tggggcagaa tgaggtggac tatcgccaga agcaggtggt catcctgagc caggatagct 420
tctaccgtgt ccttacctcg gagcagaagg ccaaagccct gaaggscag ttcaactttg 480
accaccggga tgcctttgac aatgarstca ttctcaaac actcaaagaa atcactgaag 540
ggaaaacagt ccagatcccc gtgtatgact ttgtctccca ttcccgaag gaggagacag 600
ttactgtcta tcccgcagac gtggtgctct ttgaagggat cctggccttc tactcccagg 660
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ccctgagctt aaataacaaa actgtgccaa ctactactgg tgatgcctaa ttatgaatcc 1260
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&lt;210&gt; 221

<211> 1369  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (1347)  
<223> n equals a,t,g, or c

<400> 221  
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tgagatagtg aargtgaaag caattggaag acaaagggtt aaagtccttg agctaagaac 180  
acagtcagat ggaatccagc aagctaaagt gcaaattctt cccgaatgtg tgttgccttc 240  
aaccatgtct gcagttcaat tagaatccct caataagtgc cagatatttc cttcaaaacc 300  
tgtctcaaga gaagaccaat gttcatataa atggtggcag aaataccaga agagaaagt 360  
tcattgtgca aatctaactt catggcctcg ctggctgtat tccttatatg atgctgagac 420  
cttaatggac agaatacaaga aacagctacg tgaatgggat gaaaatctaa aagatgattc 480  
tcttccttca aatccaatag atttttctta cagagtagct gcttgtcttc ctattgatga 540  
tgtattgaga attcagctcc ttaaaattgg cagtgtctatc cagcgacttc gctgtgaatt 600  
agacattatg aataaatgta cttccctttg ctgtaaacaa tgtcaagaaa cagaaataac 660  
aaccaaaaat gaaatattca gtttatcctt atgtgggccg atggcagctt atgtgaatcc 720  
tcatggatat gtgcatgaga cacttactgt gtataaggct tgcaacttga atctgatagg 780  
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<210> 222  
<211> 792  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (573)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (585)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (599)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (636)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (699)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (772)  
 <223> n equals a,t,g, or c

<400> 222  
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 tgcttaaatgc tgtcttaact agtgtaggaa aacggctcaa cccaccgctg ccgaaatgaa 180  
 gtataagaat cttatggcaa gggccttata tgacaatgtc ccagagtgtg ccgaggaact 240  
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<210> 223  
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 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (851)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (885)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature



<222> (895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (911)

<223> n equals a,t,g, or c

<400> 223

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gccaggaaac gtgtgggcct ctctgctgcg gtctccgagg gccgaccgct gccggcggcg 180
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gttggaaggc gaagaacaaa gactccacat acgttccac acagtagata catgagtcag 600
atgtctgtcc cagagcaggc agaattagag aaactgaaac agcggataaa cttcagtgat 660
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<210> 224

<211> 1979

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1949)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1953)

<223> n equals a,t,g, or c

<400> 224

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agccggctcg gcgagctctc ccgacacccg agccggggag gaaaagcagc gactcctcgc 180
tcgcatcccc gggagccgca ctccagactg gcccggtagt cagggggtca ggagcagatc 240
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gccggaccag acaggccacc atgaccgaga attccacgtc cggccctgcg gccaaagccca 360
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cctaggaaga cttttctttt cctctggatt tttgttcctc ctgtacaaga ggtgtctttg 1800
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taaacaagtg ttacttgtgc cgggaaaatt ttgctgtctt tgtaatttta aaactttaaa 1920
ataaattgga aaagggaraa aaaaaaagna aanaaaaaaa aaaaaaaaaa aaaaaaaaaa 1979
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<210> 225

<211> 541

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (506)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (511)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (532)

<223> n equals a,t,g, or c

<400> 225

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tcgacccacg cgtccgcccc cgcgtccggg aaacaggaga tcgtggatcc tccttcaaaa 60
atggaggatg gaaagcccgt ttgggcgcca caccctacag atggatttca gatgggcaat 120
attgtggata ttggccccga cagcttaaca attgaacctt tgaatcagaa aggcaagaca 180
tttttggctc tcataaacca agtgtttcct gcagaagagg acagtaaaaa agatgtggaa 240
gataactgtt cactaatgta tttaaatgaa gccacactgc tccataatat caaagttcga 300
```

tatagtaaag acagaattta tacatatgtc gccaacattc tgwttgagc gaatccatac 360  
tttgacatac ctaaaatata tcttcagagc ataaagtc atcaaggaaa atctcttggg 420  
acaagaccac ctccaggtct ttgcaattgc tgataagcct ttcgggacct ggaaggtgcc 480  
ccaagatgag tcagtctaac catggnatcc nggagaatcc aggggccggg gnaaaccagg 540  
a 541

<210> 226  
<211> 277  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (135)  
<223> n equals a,t,g, or c

<400> 226  
tcgacccacg cgtccgtgaa taagcaatct ggcctttgag ggggctgttg cggtagacagac 60  
aattctgtgg agcggcttcg gcggctccga ggagaagcaa tatgttaagg atacctctaa 120  
gaagggcctt agtangcctt tctaataagt cttccaaagg atgtgttcga acaactgccca 180  
cagcagcaag caacttratt gaagtatttg ttgatggtca rtctgtcatg gtggaaccrg 240  
gaackacygt cctccaagct tgtgagaagg ttggcat 277

<210> 227  
<211> 2069  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2026)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2042)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2050)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2061)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2062)

<223> n equals a,t,g, or c

<400> 227

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gggtcgaccc acgcgtccgg gcgacattag ctacgcgtcg ctctactctc tctaacggga 60
aagcagcggg atacaagaga ctgaactgta tctgcctcta tttccaaaag actcacgttc 120
aactttcgct cacacaaagc cgggaaaatt ttattagtcc tttttttaa aaaagttaat 180
ataaaattat agcaaaaaaa aaaaggaacc tgaactttag taacacagct ggaacaatcc 240
gcagcggcgg cggcagcggc gggagaagag gtttaattta gttgattttc tgtggttgtt 300
ggttgttcgc tagtctcacg gtgatggaag ctgcacattt tttcgaaggg accgagaagc 360
tgctggaggt ttggttctcc cggcagcagc ccgacgcaaa ccaaggatct ggggatcttc 420
gcactatccc aagatctgag tgggacatac ttttgaagga tgtgcaatgt tcaatcataa 480
gtgtgacaaa aactgacaag caggaagctt atgtactcag tgagagtagc atgtttgtct 540
ccaagagacg tttcattttg aagacatgtg gtaccaccct cttgctgaaa gcaactggttc 600
ccctgttgaa gcttgctagg gattacagtg ggtttgactc aattcaaagc ttcttttatt 660
ctcgtaaagaa tttcatgaag ccttctcacc aagggtaccc acaccggaat ttccaggaag 720
aaatagagtt tcttaatgca attttcccaa atggagcagc atattgtatg ggacgtatga 780
attctgactg ttggtactta tatactctgg atttcccaga gagtcgggta atcagtcagc 840
cagatcaaac cttggaaatt ctgatgagtg agcttgaccc agcagttatg gaccagttct 900
acatgaaaga tgggtgtact gcaaaggatg tcaactcgtg gagtggaatt cgtgacctga 960
taccagggtc tgtcattgat gccacaatgt tcaatccttg tgggtattcg atgaatggaa 1020
tgaaatcggg tggaaactat tggactattc acatcactcc agaaccagaa ttttcttatg 1080
ttagctttga aacaaactta agtcagacct cctatgatga cctgatcagg aaagttgtag 1140
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gcacagtgtc tgcttcgccc cagaagattg aagggtttta gcgtcttgat tgccagagtg 1260
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gctgtgaaat tgaagtgcac gtagaaaaaa ccttttacta tatgaaactt tacaacactt 1620
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ttctttacta atgttattga aaccaatttc tacttcatac tgatgttttt ggaaacagca 1860
attaaagttt ttcttccatg agttgagtc ttaagaaaat gattccagtt actcattttg 1920
catatttgct attttaacat tattggaccc tgcaattata gtcctttgat ttcttccttc 1980
tccctggtgt ctcccccaag accccaaata aagcaatata ctgttnaaca aaaaaaaaaa 2040
anggggggcn gccctagggg nnccaagct 2069
```

<210> 228

<211> 471

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (287)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (372)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (462)

<223> n equals a,t,g, or c

<400> 228

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ttccagtcag cggctgcagg gtcgggctcg cgccgtcctc tccccgcccc cgccgkattc 60
taatgtagga actggtgaga agaaggtgac tgaagcctgg atttctgagg atgaaaactc 120
acataggacg acgtcagaca gactcacggg gatggagctc ccctctcccc agtctgagga 180
agtccacgag cccagattag gggagctctt gggaaatcca gaaggtcaga gcctggggag 240
ttccccctct caggacaggg gctgcaacag gtgacagtga cccattngaa gatccagaca 300
ggagagacag ctcaagtgtg caccaagtca ggaagaaacc atattctgaa atcagacttc 360
ttctggcttc anagagagct ccttagaagg ggaagccat tccttgcgat atcctgtngg 420
gaaaccttca cgtttaattc ggacctaaat aaggcatcgg antttcgcac c 471
```

<210> 229

<211> 1640

<212> DNA

<213> Homo sapiens

<400> 229

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ggcgacatgt cgacctgacg ctctacacga tggcgacctc aagtcattgt gcacctcctt 180
cgaaggtaca tggcatcccc gctccattcc ctgcggatgg gtggctacct gttctctggc 240
tcccaggccc cccagttgtc ccctgctctg ttgagagccc tgggcccagaa gtgccccaac 300
ctgaagcgcc tctgcctgca cgtggccgac ctgagcatgg tgcccatcac cagcctgccc 360
agcaccttga ggaccctgga gctgcacagc tgcgagatct ccatggcctg gctccacaag 420
cagcaggacc ccaccgtgct gcccctgctt gaatgcatcg tgctggaccg cgtccccgcc 480
ttccgtgacg agcacctgca gggcctgacg cgcttcgggg ccttgcgctc gctgggtgctg 540
ggtggtacct accgtgtgac cgagacaggg ctggatgctg gcctgcagga gctcagctat 600
ctgcagaggg ttgaggtgct gggctgcacc ctgtctgccg acagcaccct gctggccatc 660
agccgccacc ttccgagatg tgcgcaagat ccggctgacc gtgagggcct ctctgcccct 720
ggcctggctg tgctggaggg aatgccggcc ctggagagtc tgtgcctgca ggggtcccctc 780
gtcaccccag aaatgccctc cccactgaa atcctctcct cctgcctcac tatgcccag 840
ctcagagtcc ttgagctgca ggggctgggg tgggagggtc aggaggcgga gaagatcctg 900
tgtaaggggc tgccccactg tatggtcatc gtcagggtt gccccaaaga gtctatggag 960
tggtggatgt aactactcca cctgcccttg ggacctatc cagttttcat cattgagccc 1020
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cccaggttga gagaacagag gcctagggac ctccagacca ttggaatcac tgtttgccag 1140
ctgtgtggcc ttggtcatat catcagcctc tgggaagcct agttcccaca tctggaaata 1200
aggatgatca tagctacctc acggttacat tgcaaaagcct tactctaaaa gctcccagcc 1260
tccagaggct ctcaatgaag agtcaccttc atggtcgtct tcaggaacag gacggatgaa 1320
```

```

gaaggggtgg gggttaagact cagggggcacc tgaggggtctg agccccctta tgagtaccca 1380
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acgcaagaga cgcggagaga taggcgatgc agactcgcga ttcaatgatc gatatgctca 1500
taaaagtgtc caattatatt ttctgtatgt tgtatgctgt attttccaag acgtatatta 1560
ttttactatt aaagaaaaaa atcatttttt tttcccgaaa aaaaaaaaaa aaaaaaaaaa 1620
aaaaaaaaaa aaaaaaaaaa                                     1640

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<210> 230

<211> 1970

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1952)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1963)

<223> n equals a,t,g, or c

<400> 230

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cngnccccgag cccagagcgc cggcgggcccg actccccggcc gcccctttct ttctcctcgc 60
cggccccgaga gcaggaacac gataacgaag gagggccaac ttcattcaat aaggagcctg 120
acggatttat cccagacggt agaacaaaag gaagaatatt gatggatttt aaaccagagt 180
ttttaaagag cttgagaata cggggaaatt aatttgttct cctacacaca tagatagggt 240
aaggttgttt ctgatgcagc tgagaaaaat gcagaccgtc aaaaaggagc aggcgtctct 300
tgatgccagt agcaatgtgg acaagatgat ggtccttaat tctgctttaa cggaagtgtc 360
agaagactcc acaacaggtg aggagctgct tctcagttaa ggaagtgtgg ggaagaacaa 420
atcttctgca tgtcggagga aacgggaatt cattcctgat gaaaagaaaag atgctatgta 480
ttgggaaaaa aggcggaaaa ataataaagc tgccaaaaga tctcgtgaga agcgtcgact 540
gaatgacctg gttttagaga acaactaat tgcaactgga gaagaaaacg ccactttaaa 600
agctgagctg ctttactaa aattaaagt ttggtttaatt agctccacag catatgctca 660
agagattcag aaactcagta attctacagc tgtgtacttt caagattacc agacttccaa 720
atccaatgtg agttcatttg tggacgagca cgaaccctcg atggtgtcaa gtagttgtat 780
ttctgtcatt aaacactctc cacaaagctc gctgtccgat gtttcagaag tgcctcagt 840
agaacacacg caggagagct ctgtgcaggg aagctgcaga agtcctgaaa acaagttcca 900
gattatcaag caagagccga tggaaattaga gagctacaca agggagccaa gagatgaccg 960
aggctcttac acagcgtcca tctatcaaaa ctatatgggg aattctttct ctgggtactc 1020
acactctccc ccactactgc aagtcaaccg atcctccagc aactccccga gaacgtcgga 1080

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aactgatgat ggtgtggtag gaaagtcac tgatggagaa gacgagcaac aggtcccca 1140  
gggccccatc cattctccag ttgaactcaa gcatgtgcat gcaactgtgg ttaaagttcc 1200  
agaagtgaat tcctctgsct tgscacacaa gctccggrtc aaagccaaag ccatgsagat 1260  
caaagtagaa gcctttgata atgaatttga ggccacgcaa aaactttcct cacctattga 1320  
catgacatct aaaagacatt tcgaactcga aaagcatagt gcccgaagta tgggtacattc 1380  
ttctcttact cctttctcag tgcaagtgcac taacattcaa gattggtctc tcaaatacga 1440  
gcactggcat caaaaagaac tgagtggcaa aactcagaat agtttcaaaa ctggagttgt 1500  
tgaaatgaaa gacagtggct acaaagtttc tgaccagag aacttgtatt tgaagcaggg 1560  
gatagcaaac ttatctgcag aggttgtctc actcaagaga cttatagcca cacaaccaat 1620  
ctctgcttca gactctgggt aaattactac tgagtaagag ctgggcattt agaaagatgt 1680  
catttgcaat agagcagtc attttgtatt atgctgaatt ttcactggac ctgtgatgtc 1740  
atttactgt gatgtgcaca tgttgtctgt ttggtgtctt tttgtgcaca gattatgatg 1800  
aagattagat tgtgttatca ctctgcctgt gtatagtcag atagtccatg cgaaggctgt 1860  
atatattgaa cattattttt gttgttctat tataaagtgt gtaagttacc agtttcaata 1920  
aaggattggt gacaaacaca gaactcctgc tncattgcat tgnnttgatg 1970

<210> 231

<211> 310

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (262)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (298)

<223> n equals a,t,g, or c

<400> 231

gcgagactcc gtctcaaaac aaaacaaata aaaaaaacia acagtatttt ttaggaattc 60  
attttatttt aaattttgta aggaggagt acaaaaagac aaatactaca tatgattcca 120  
cttgcatcac ctagagtcaa attcatggag acagaaagta gaaagggtgt taccagcggc 180  
tggaaggag agaattgtga gtttaatggg tatagaattt tagttttgta aggtgaaatg 240  
agttctggag attggttgca cnaacagtgt gaatactac aacactactg aactgtanac 300  
ttaaaatgat 310

<210> 232

<211> 2833

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1399)

<223> n equals a,t,g, or c

<220>

<221> misc feature

&lt;222&gt; (2828)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 232

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ggcagaggcc agggccaagg ccgaggcggc agggctgcga gaggcggcgg caccgacgacg 60
gtccctcagc ccagccacca tgagcaccac gcagatcact tgcaggtatt ttatgcatgg 120
tgtgtgtcgg gaaggaagtc agtgcctatt ctcacatgac ttggcaaaca gcaaaccgtc 180
caccatctgc aagtactacc agaagggcta ctgtgcctat ggaactcggg gcagatatga 240
ccacacgagg ccctctgctg cagctggagg tgctgtgggc accatggccc acagtgtgcc 300
ctccccagct ttccacagtc ctcaccctcc ttccgagggt actgcatcca ttgtgaaaac 360
taactcacat gaacccggaa agcgtgaaaa gagaacattg gttcttagag accgaaatct 420
ctctggcatg gctgaaagga agacccagcc gagcatgggt agtaatccag gcagctgcag 480
cgacccccag ccagcccccg agatgaagcc gcattcctac ctggatgcca tcaggagtgg 540
ccttgatgac gtggaggcca gcagctccta cagcaacgag cagcagctgt gcccctacgc 600
agctgctggg gagtgcgggt ttggggatgc ctgtttctac ctgcacgggg aggtgtgtga 660
aatctgtagg ctgcaagtyt tgcacccatt cgacccagag cagaggaagg ctcacgaaaa 720
gatctgcatg ttgacgttcg aaacacgagat ggaaaaggcc ttgtccttcc aggcaagcca 780
ggacaaaagt tgcagtatct gcatggaagt gatcctggag aaggcctctg cttctgagag 840
gagatttggg attctctcca attgcaatca caggtactgt ttgtcctgca tccggcagtg 900
gcggtgtgcc aaacagtttg aaaacccaat cattaagtct tgtccagaat gccgtgtgat 960
atcagagttt gtaattccaa gtgtgtattg ggtggaagat cagaataaaa agaacgagtt 1020
gattgaagct ttcaaacagg ggatggggaa aaaagcctgt aaatactttg agcaaggcaa 1080
ggggacctgc ccatttgga gcaaatgtct ttatcgccat gcttaccctg atgggcgggt 1140
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ttcagtgcgg ctctgggatt tcatcgagaa ccgagaaagc cggcatgtcc ccaacaatga 1260
agatgtcgac atgacagagc tcggggacct cttcatgcac ctttctggag tggaatcatc 1320
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gtgaaagata taaagtaacc taattaaatg tatggaattg ctatttttat agctgatata 1560
gttacacctc aagcccctca ggggtaacaa ctaacaaaac cccaaactgt ttggattgat 1620
tgctttaaaa aacaaacctg gctcttayct ttgatctttt cttccccaga aatagtaaac 1680
ttgcagctgc ccctaattgca gcatattttt cttaccaaag gagtcttcag ccctataaaa 1740
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tcccttaggg aggccttga aggagcagga ggtacagtac tgggtagcag tctggccctc 2040
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ttagctgagt ttagagtact ttctgcttaa ttaattttta tacttaactc ttcagtagag 2520
gtttacaaag agtacaaagg ttaaattaca aattcattcc cagcctaggc tctgggcaca 2580
tttctgttc ttgaattctg ctctgaaga ggggaacaa atggggcatt caagttgtga 2640
gctcagaatt actttaaaag gaggtaacag ccagccatta cacctaaatt taatttattt 2700
tattaaaaata acataattga gggaccatca gataactgta ttttgtcagg tgcaataaaa 2760
acaaaattaa aacccaaatc atcaagaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2820
```



aaaaaaanaa aaa

2833

&lt;210&gt; 233

&lt;211&gt; 692

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (289)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 233

```
ggcagagggtc caacgtagac agtgggtctca tkcactccat aggcttaggt taccacaagg 60
atctccagac aagagctaca tttatggaag ttctgacaaa aatccttcaa caaggcacag 120
aatttgacac acttgacagaa acagtattgg ctgatcggtt tgagagattg gtggaactgg 180
tcacaatgat gggatgatcaa ggagaactcc ctatagcgat ggctctggcc aatgtgggtc 240
cttggttctca gtgggatgaa ctagctcgag ttctgggttac tctgtttgna ttctcggcat 300
ttactctacc aactgctctg gaacatgttt tctaaagaag tagaattggc agactccatg 360
cagactctct tccgaggcaa cagcttggcc agtaaaataa tgacattctg tttcaaggta 420
tatggtgcta cctatctaca aaaactcctg grtcctttat tacgaattgt gatcacatcc 480
tctgattggc aacatgttag ctttgaagtg gatcctacca gkttagaacc atcagagagc 540
cttgaggaaa accagcggaa cctccttcag atgactgaaa agttcttcca tgccatcatc 600
agttcctcct cagaattccc ccctcaactt cgaagtgtgt gccactgttt ataccaggca 660
acttaccact ccctactgaa taaagctaca gt 692
```

&lt;210&gt; 234

&lt;211&gt; 1353

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (649)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1020)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1255)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 234

```
ggcacgagcc gatagctgct tcgggattgg cgtccggggc gctatctagg ggctgctggg 60
aagatggcgg actcgggtggc tagccgatga ggaggccgcg gggggaaccc ggcccccg 120
ccccgagacc gactgaggga gcgacctgcg cagggcccg gtagtcatgg tctccatcac 180
ccaactccat gttctgagtc ctgctctctg ctcagacctc ccctgctcgg ctgtctggcc 240
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tgctgctgat ccctccagta cagccctgct gtttggggcc cagcaaattg ggggaccggc 300
ctgttggagg aggccccagt gcaggctcctg tgcaaggact gcagcggctt ctggaacagg 360
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<211> 346

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (151)

<223> n equals a,t,g, or c

<400> 235

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ttccgcttcc gcttgccac tttcaggaat ttgattctga gagcagggct gcggttccag 300
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<211> 2271

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (547)

<223> n equals a,t,g, or c

<400> 236

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<210> 237

<211> 3050

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (492)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3024)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3031)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 237

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<211> 2802

<212> DNA

<213> Homo sapiens

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<222> (613)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1800)

<223> n equals a,t,g, or c

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&lt;210&gt; 239

&lt;211&gt; 1537

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 239

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<213> Homo sapiens

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<222> (71)  
<223> n equals a,t,g, or c

<220>  
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<210> 242

<211> 139

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (137)

<223> n equals a,t,g, or c

<400> 242



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gggttggar cagwccggttg atggaagtgg aacagggtgct ggagtcggcg cgcaaagcaa 120  
tagggactag ggatcgncg 139

<210> 243  
<211> 479  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (462)  
<223> n equals a,t,g, or c

<400> 243  
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agtcacaaaa gattttgcat gtcaagattc tagccttttt cttctggtgt actgagaggc 120  
cagaggagcc cattctaggg actaagtatt gacagaattt gggtctgtgg caagaattac 180  
ctggtgtcct agcactaagg accagtaggt cagagccctt gacttagatt tcaggacaag 240  
aaacagaaag attggaatag gattgraatg gagtctcccc gtgattttta aaaacactta 300  
statggggcc asgcgcrcrk tggtcacaac cctgtaatcc cagcactttg ggaggccaag 360  
atgggtggat catgaggtca ggagatcgag accgtcctgg ctaacatggt gaaacccccg 420  
ctctactaaa aatataaaaa aattaacccg gccgtggtgg cngggcgccct gtagtccca 479

<210> 244  
<211> 584  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (582)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (583)  
<223> n equals a,t,g, or c

<400> 244  
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tgcccaccgc catctccagc tgttgccaag acagagattg ctttaagtgg caaatcacct 120  
ttattagcag ctacttttgc ttactgggac aatattcttg gtcctagagt aaggcacatt 180  
tgggctccaa agacagaaca ggtacttctc agtgatggag aaataacttt tcttgccaac 240  
cacactctaa atggagaaat ccttcgaaat gcagagagtg gtgctataga tgtaaagttt 300  
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ctcccacttc atagagtgtg tgttgataga ttaacacata taatccggaa aggaagaata 480  
tggatgcata aggaaagacm agaaatgtcc agaagattat cttagaaggc acagagagaa 540  
tggaagatca ggtcagagta ttattccaat gcttactgga gnng 584

<210> 245  
<211> 332  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (235)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (272)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (288)  
<223> n equals a,t,g, or c

<400> 245  
ggcacagcgt tcacccgaca gtgttcacag ggcccatggt acagagcacg gagcagggtc 60  
ccccaggttg tgcgcttgcc agggccacat cttgagcctt cgctctgctc cttcgagagc 120  
cgctgctgcc ccacccaat cccaaccag ccacccctc ctgcctccct gccatctgtc 180  
cctttcatcc tccctggcgt gccaaagcgc tgccatggca ccgcctgtta cctanccag 240  
ctacaaatgc cagccttgaa tctgccctgg antcccttcc tctaccangt aaacagcctt 300  
aactcagccc tgccactccc tgctctgaag ct 332

<210> 246  
<211> 1617  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (215)  
<223> n equals a,t,g, or c

<400> 246  
cccagatcc ctttcccaga gtgctctgcg ccgwgaaagaa gcggctcccg gggactkggg 60  
gcattttgtg ttggctggag ctggagtaac aagatggcgt cgtccgcgga gtgacagggg 120  
tccctctggg ccggagccgg cggcagtggg ggagcggta tcgcccctt agctcaccgc 180  
gccccttttc cagcccgcgga cgtcgccgcg caagnaggca gcggcgggcg ccgagaaaca 240  
agtggcccg cctggtaacc gccgagaagc ccttcacaaa ctgcggcctg gcaaaaagaa 300  
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cccagggcct ccgtccctctt cccagaggtg tcggggcctt gccagcctcc atcttcgtct 480  
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aacggcgagg aagtggcagt gaagctagaa tctcagaagg ccaggcatcc ccagttgctg 660  
tacgagagca agctctataa gattcttcaa ggtgggggtg gcatcccca catacgggtg 720

tatgggtcagg aaaaagacta caatgtacta gtcattggatc ttctgggacc tagcctcgaa 780  
gacctcttca atttctgttc aagaagggttc acaatgaaaa ctgtacttat gttagctgac 840  
cagatgatca gtagaattga atatgtgcat acaaagaatt ttatacacag agacattaaa 900  
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tacttaaaact attgtcgtgg gctacgcttt gaggaagccc cagattacat gtatctgagg 1320  
cagctattcc gcattctttt caggaccctg aacctcaat atgactacac atttgattgg 1380  
gacaatgtta aagcagaaaag cagcacagca ggcagcctct tccagtgggc agggtcagca 1440  
ggcccaaacc cccacaggca agcaaactga cmaaaccaag agtaacatga aagggttagta 1500  
rccaagaacc aagtgcggtt acagggaaaa aattgaatmc aaaattgggt aattcatttc 1560  
taacagkgtt agatcaagga gkgggtttta aaatacataa aaatttggct ctgcgtt 1617

<210> 247

<211> 1449

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1447)

<223> n equals a,t,g, or c

<400> 247

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gagaacgcga gtcccaggat ccccgccacc casttctctt ccactgcatt ccccgggcgc 120  
gtgtgggacc gaggtggaca tggatccgca gaggtcccc ctattggaag taaaggggaa 180  
catagaactg aagagacctc tgattaaggc cccttcccag ctgcctctct caggaagcag 240  
actcaagagg aggcctgacc agatggaaga tggcctggag cctgagaaga aacggacaag 300  
aggcctgggt gcaasgacca aaattaccac atccccacca agagtccat ccctcactac 360  
agtgccacag acacaaggcc agaccacagc tcaaaaagtt tccaagaaga caggaccccc 420  
gtgttcacac gctattgcca cagggttgaa gaaccagaag ccagtctctg ctgttcctgt 480  
ccagaagtct ggcacatcag gtgttcctcc catggcagga gggagaagaa ccagcaaacg 540  
tccagcctgg gacttaaagg gtcagttatg tgacctaaat gcagaactaa aacggtgccg 600  
tgagaggact caaacgttgg accaagagaa ccagcagctt caggaccagc tcagagatgc 660  
ccagcagcag gtcaaggccc tggggacaga gcgcacaaca ctggaggggc atttagccaa 720  
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ctcgggncc

1449

<210> 248  
<211> 1484  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (37)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1477)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1478)  
<223> n equals a,t,g, or c

<400> 248  
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tgaacggcaa gcttgagcaa cgcggtaaaa atattgcttc ggtgggtgac gcggtacagc 180  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanngg gggg 1484

<210> 249  
<211> 2422

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2354)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2408)

<223> n equals a,t,g, or c

<400> 249

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ccttctttta aacaaaaata cgtacaaggc ccacgcgtcc ggggacgcgt ggggagtctt 120
tctaattctt cttttctaca gacccatctg acctctccct tccccccag gctgctcctt 180
gccaggccga gctaggtccc aattcttcct cagcctctgc tccctccacc tataatcttt 240
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taaaaaycca gccagttca tgrctygttt ggcagcaacc ctgagacact ttacagccct 480
agaccctaaa aggtcaaaag gccrtcttat tctcaawata cattttatta cccaatctgc 540
tcccgcacatt aaataaaaact ccaaaaatta rawtcyggcc ctcaaaccct acaacaggay 600
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gtttttctcc ttctgttatt ccatttagtt tctcaattca tccaaaaccg tatccaggcc 2220
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atcaccaatc attctatayg acaaagtgtt cttctwacat cccacaata tcaccctta 2280
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<210> 250

<211> 574

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (44)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (77)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<400> 250

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tctgtatttg ggtgaantcc atccagacgt caattaacac ttcctttatt ttgggggttg 120
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<210> 251

<211> 1044

<212> DNA

<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1010)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1011)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1012)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1013)  
<223> n equals a,t,g, or c

<400> 251  
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gggcgtggac cgtggagcag ctgcgcagtg agcagctgcc caagaaggac attatcaagt 120  
ttctgcagga acacggttca gattcgtttc ttgcagaaca taaattatta ggaaacatta 180  
aaaatgtggc caagacagct aacaaggacc acttggttac agcctataac catctttttg 240  
aaactaagcg ttttaagggt actgaaagta taagtaaagt gtctgagcaa gtaaaaaatg 300  
tgaagcttaa tgaagataaa cccaaagaaa ccaagtctga agagaccctg gatgagggtc 360  
caccaaaata tactaaatct gttctgaaaa agggagataa aaccaacttt cccaaaaagg 420  
gagatgttgt tcaactgctgg tatacaggaa cactacaaga tgggactgtt tttgatacta 480  
atattcaaac aagtgc aaag aagaagaaaa atgccaagcc ttttaagtttt aaggtcggag 540  
taggcaaagt tatcagagga tgggatgaag ctctcttgac tatgagtaaa ggagaaaagg 600  
ctcgactgga gattgaacca gaatgggctt acggaaaagaa aggacagcct gatgccaaaa 660  
ttccaccaaa tgcaaaactc acttttgaag tggaattagt ggatattgat tgaaatagca 720  
gtgcttcagc tctaaggata ttagcaacaa tgataaaact tggccttgaa gaaatttaca 780  
caactagtta gaacttgta ctattgtaaa ggaagagtca actggaaaat tcaaggagtt 840  
aataaaaattt gtttacttgg tcccagcttt tgagagataa atcccttatg aatccctggt 900  
ctaaaatact ttctacagc tgtgtaaaat actggtcaag gagaactttt tccttttacc 960  
tcatgttgta aacttaagtg gctcaataaa aattgatcca ctgtcttgan nnnaaaaaaa 1020  
aaaaaaaaaa aaaaaaaaaa aaaa 1044

<210> 252  
<211> 1029  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (835)  
<223> n equals a,t,g, or c

&lt;400&gt; 252

```
ggcacgagcg gccactgcct gccgcgwgcg gagccggagc ccgagcctga gtggcgccgg 60
gcccagacgtg gggctccttg gccgcggcgg cgggcggggc atgctccaga ggcctgacca 120
gccatggagg ccgaggcagg cggcctggag gagctgacgg acgaggagat ggcggcgcta 180
ggcaaggaag agctagtgcg gcgcctgcgg cgggaggagg cggcgcgccct ggcggcactg 240
gtgcagcgcg gccgcctcat gcaggagggt aatcggcagc tgcaggggcca cctgggagag 300
atccgcgagc tcaagcagct caaccggcgt ctgcaggcag agaaccgtga gctgcgcgac 360
ctctgctgct tcctggactc ggagcgccag cgcggggcgg gcgccgcacg ccagtggcag 420
ctcttcggga cccaagcacc ccgggcccgt cgcgaggacc tgggcggctg ttggcagaag 480
ctggccgagc tggagggcgg ccaggaggag ctgctgcggg agaacctagc gcttaaggag 540
ctctgcctgg cgctggggcg agaattgggg ccccgcgggc gcccagcgg cgccggggga 600
tcaggagccg ggccagcacc cgagcttgcc ttgccccgt gcgggccccg cgacctaggc 660
gatggaagct ccagcactgg cagcgtgggc agtcgggac agttgcccct ggctgttcc 720
cccgatgatt gaaggcactg ctctctccac gccgacgccc gcccggattg ctccccgagc 780
cccgggaccg ctgtggacct cgggacctgg acgccgtcct gstgcgcagg agggncgct 840
ggcatggact aagaaatcct gacaccaaga agggcccctc gctcttgctg gcagggcagc 900
agggggactg aaggctggag cggagggact tgcctgggggt tggattgggg gtaataaacc 960
cggacggaag cggaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaggrcg gccgctcgcg 1020
atctagaac 1029
```

&lt;210&gt; 253

&lt;211&gt; 475

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 253

```
ggcacagcca ggtgctcctg acggacttaa gtgccaaaaa ctgactccat gctaggaacc 60
actgagttct caaccagtga gtttatgatt cctattttta aaataacctt taaagtctga 120
ttataaaagt agtacatagt ctttgtggaa aattttattaa gtacagtaag tgcagaagaa 180
gaaataaatc actcataatc ccagcagaca gaattaatca ctgtcatttt aggtgtattt 240
ttttgcagag taaaacatgt aaacatttta catagacata aatacaaaaca tgataagcat 300
tggacatgga aaatgggcag taaattctgt acatgtgcct tcttgatttt ttgttgattt 360
tttawatcat gcytttttgc aaaatacatt ataaattaaa catggaattt cactagtttt 420
ctgtggtatt cattttccat gggctggaat aatggtccgg tccactatat ggggt 475
```

&lt;210&gt; 254

&lt;211&gt; 1724

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (440)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 254

```
ggcacagtac agcaagaggg caaggacaat tgcttaagtt gacctctggg tccggaatcg 60
cgggcaaaga tggcgggcgg cagggtgttg aggcctttgc tacgcggtcc gaggctttca 120
ttgcacaccg cggctaattgc cggcgccacg gctacagaaa cgacctgcca agacgtcgcg 180
gcgacccccg tcgcgcggta cccgcccatt gtggcctcca tgacagccga cagcaaagct 240
gcacggctgc ggcggatcga gcgctggcag gcgacggtgc acgctgcgga gtcggtagac 300
```



```

gagaagctgc gaatcctcac caagatgcag tttatgaagt acatgggttta cccgcagacc 360
ttcgcgctga atgccgaccg ctggtaccag tacttcacca agaccgtggt cctgtcgggt 420
ctgccgccc cccagcgan cccgagccc agcccgaacc cgaacctgaa cctgcgctgg 480
acctgcgcg gctgcgtgcg gtcgcctgcg actgcctgct gcaggagcac ttctacctgc 540
ggcgcarcgg cgcgtgcacc gttacgagga gagcgaggtc atatccttgc ccttcctgga 600
tcagctggtg tcaaccctcg tgggcctcct cagcccacac aaccggccc tggcgcgtgc 660
cgccctcgat tatagatgcc cagttcattt ttactgggtg cgtggtgaag aaattattcc 720
tcgtggtcat cgaagaggtc gaattgatga cttgcgatac cagatagatg ataaaccaa 780
caaccagatt cgaatatcca agcaactcgc agagtttgtg ccattggatt attctgttcc 840
tatagaaatc cccactataa aatgtaaacc agacaaactt ccattattca aacggcagta 900
tgaaaaccac atatttgttg gctcaaaaac tgcagatcct tgctgttacg gtcacacca 960
gtttcatctg ttacctgaca aattaagaag ggaaaggctt ttgagacaaa actgtgctga 1020
tcagatagaa gttgttttta gagctaagc tattgcaagc ctttttgctt ggactggagc 1080
acaagctatg tatcaaggat tctggagtga agcagatggt actcgacctt ttgtctcca 1140
ggctgtgatc acagatggaa aatacttttc ctttttctgc taccagctaa atactttggc 1200
actgactaca caagctgatc aaaataaccc tcgtaaaaat atatgttggg gtacacaaa 1260
taagcctctt tatgaaacaa ttgaggataa tgatgtgaaa ggttttaatg atgatgttct 1320
acttcagata gttcactttc tactgaatag accaaaagaa gaaaaatcac agctgttgg 1380
aaactgaaaa agcatatttg attgagaact gtgggaatat ttaaatttta ctgaaggaa 1440
aataatgatg agatttgtaa ctgtcaacta ttaaatacat tgatttttga gacaaatatt 1500
tcttatgtca acctgttatt agatctctta ctctgtcaa attcatcact gaaagattta 1560
attttagtta ctttttggtg atttaaaaat aattgcattt gtatattgct aactgataag 1620
acaaattgag ttattgagct attaaatgca cattttaata taaatgcaga aatcccaaat 1680
aaaatgctaa catactgaat tcagtaatta aaagaacca ctgc 1724

```

<210> 255

<211> 306

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (195)

<223> n equals a,t,g, or c

<400> 255

```

ggcagagcgg ctcctcagct ccaggacctt gctagcagct gccctcagga agaagtttct 60
cagcagcagg aaagcgtctc camtctccct gccagcgtgc atccccagct gtscacggm 120
agagcctgga gaccagctac ctgcagcaca gactccagra gccagcctt ctgtcaaagg 180
cccagaacac ctgtnagcat ctgctgcaga atcaagcgac tctttcttca gaagcagtct 240
caactgcagg cctattttta tcagatgcag atagcagaga gctcctaccc acagccaagt 300
cagcag 306

```

<210> 256

<211> 890

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (862)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (881)

<223> n equals a,t,g, or c

<400> 256

```
ggcacgaggc ccggccgccc cctgccctct ccgctggcca cctgctgccg cccgcgccat 60
ggctggcaaa gcacacaggc tgagcgctga ggagaggac cagctgctgc caaacctgag 120
ggctgtgggg tggaatgagc tggaaggccg tgatgccatc ttcaagcagt ttcatttcaa 180
agacttcaac agggcctttg gggtcatgac aagagtggcc ctgcaggctg agaaactgga 240
ccaccatcct gaatggttta acgtgtacaa caaggtccac atcacgctga gcacccatga 300
gtgtgccggc ctttcagaac gggacataaa cctggccagc ttcacgaac aagtagcagt 360
gtccatgaca tagaccctgc ccttcctctt tgaattcttc cgggggaaa ggtgactgaa 420
ctgggagtc caggaggag ctgaggagcc cttaccctcc caccactccc ctccaagac 480
ccagccgccc ccgttgaggg ctgagtcctt gctgtgggat gtgccagtgt cccaccaac 540
accaggaatt tagacctttt cctgcacca ctctcttcat cctgggggct ctgttacct 600
aatttgaata aactctcccc tttctttgca acttcccagc aacaataatg attttcttgc 660
caggccgtct cttgctccct aattcatttc ccaggaagct gtgatacagg gtgaaataaa 720
gtcttgtctt agaaaccagg accctaaacc ccacactatg taatagaaac acatgtgttt 780
ttatgtctca aataaaacta ttatatcact tggaaaaaaa aaaaaaaaaa aaaaaaaaaa 840
aaaaaaaaaa aaaaaaaaaa anaaaaaaaa aaaaagaaat naaaaaaaaa 890
```

<210> 257

<211> 1159

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (84)

<223> n equals a,t,g, or c

<400> 257

```
ggcacgaggc ggaggggaaga gcgggcccgc gggaggcgcc ggcgccagac gcggagggaa 60
ggagctacga gtagccgccc agangccgcg garccagcga cgaccgaccc agccgagccg 120
ccgcccgcgc cgcgccccca tggcggccgc caaggacact catgaggacc atgatacttc 180
cactgagaat acagacgagt ccaaccatga ccctcagttt gagccaatag tttctcttcc 240
tgagcaagaa attaaaacac tggaagaaga tgaagaggaa ctttttataa tgccgggcaaa 300
actgttccga tttgcctctg agaacgatct cccagaatgg aaggagcgag gcactggtga 360
cgtcaagctc ctgaagcaca aggagaaagg ggccatccgc ctccctcatgc ggagggacaa 420
gaccctgaag atctgtgcc accactacat cagcccgatg atggagctga agcccaacgc 480
aggtagcgac cgtgcctggg tctggaacac ccacgctgac ttccgcccag agtgccccaa 540
gccagagctg ctggccatcc gcttcctgaa tgctgagaat gcacagaaat tcaaaaacaa 600
gtttgaagaa tgcaggaaa agatcgaaga gagagaaaag aaagcaggat caggcaaaaa 660
tgatcatgcc gaaaaagtgg cggaaaagct agaagctctc tcggtgaagg aggagaccaa 720
ggaggatgct gaggagaagc aataaatcgt cttattttat tttcttttcc tctctttcct 780
ttcctttttt taaaaaattt tacctgccc ctctttttcg gtttgttttt attctttcat 840
ttttacaagg gacgttatat aaagaactga actcaacatt cagggtgttt ttttttttgt 900
ttctaagttt ttgccctatt gaagatgact tcagaaaatc cattccccag tcatgaaaat 960
```

gtactgtgct aacttttcttt tccatagtg aaacacttat ttatagtcac caaaaatagt 1020  
gaataaaaaa cacatttgga acctggaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa gggggggggac ggacgcgtgg gcggacgcgt 1140  
gggcggacgc gtgggtcga 1159

<210> 258

<211> 755

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (755)

<223> n equals a,t,g, or c

<400> 258

accacgcgt ccggttctag atcgcgagsg ccgccttttt tttttwttt gaagggccag 60  
cttactgttg gtggcaaaat tgccaacata agttaataga aagttggcca atttcacccc 120  
attttctgtg gtttgggctc cacattgcaa tgttcaatgc cacgtgctgc tgacaccgac 180  
cggagtacta gccagcacaa aaggcagggg agcctgaatt gctttctgct ctttacattt 240  
cttttaaaat aagcatttag tgctcagtc ctactgagta ctctttctct cccctcctct 300  
gaatttaatt ctttcaactt gcaatttgca aggattacac atttactgt gatgtatatt 360  
gtgttgcaaa aaaaaaaaaa gtgtctttgt ttaaaattac ttggtttgtg aatccatctt 420  
gctttttccc catttggaact agtcattaac ccatctctga actggtagaa aaacatctga 480  
agagctagtc tatcagcatc tgacagggtga attggatggg tctcagaacc atttcaccca 540  
gacagcctgt ttctatcctg tttaataaat tagtttggtg tctctacatg cataacaaac 600  
cctgctccaa tctgtcacat aaaagtctgt gacttgaagt ttagtcagca cccccaccaa 660  
actttatttt tctatgtgtt ttttgcaaca tatgagtgtt ttgaaaataa agtaccatg 720  
tctttattag aaaaaaaaaa aaaaaaaaaa aaaaan 755

<210> 259

<211> 714

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (665)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (704)

<223> n equals a,t,g, or c

<400> 259

gtctattagc ttttacctca aaattttaag ccagaactat catctttgtt tttttatttt 60  
ctatctttta acatttatct gtgaagtgac aaatggccta cagctgtgag agcaaattgga 120  
catctcctcc tgaactctga gaagatgtca aaatccacag gcaacttcct cactttgacc 180  
caagctattg acaaattttc agcagatgga atgcgttttg ctctggctga tgctgggtgac 240  
actgtagaag atgccaaact tgtggaagcc atggcagatg caggtattct ccgtctgtac 300

```

acctgggtag agtgggtgaa agaaatggtt gccaaactggg acagcctaag aagtggctct 360
gccagcactt tcaatgatag agtttttgcc agtgaattga atgcaggaat tataaaaaca 420
gatcaaaact atgaaaagat gatgttttaa gaagctttga aaacagggtt ttttgagttt 480
caggccgcaa aagataagta ccgtgaattg gctgtggaag ggatgcacag agaacttgtg 540
ttccggttta ttgaagtcca gacacttctc ctgctccat tctgtccaca tttgtgtgag 600
gcacatctgg gacactcctg gggaaagcct gacttcaatt atggaatgst ttcattgggc 660
tgtngmaggg gtctctgttta atggaagttt ttaattacac tccntcacag tadc 714

```

&lt;210&gt; 260

&lt;211&gt; 525

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 260

```

ggctttacgg ctgcgagaag acgacagaag ggggtggtgg tcgcgagrga gccggaaaga 60
tggtggttac cagatctgca cgggctaagg ccagcatcca agccgcgtcg gctgaaagtt 120
ccgggcaaaa gagttttgct gctaattggga ttcaagcgca tccagaaagt agtactggat 180
ctgatgcccg aactactgct gaatcacaga ccactgggaa gcaaagttta atccctagaa 240
ctcctaaaagc tagaaagagg aagagcagaa ctacaggctc actaccaaag gggactgaac 300
catctacgga tggagagacc tctgaggcag agtcaaatta ttctgtgtct gagcaccatg 360
ataccatttt aagggttaact aggagaaggc agatcttaatt tgcatgctcc ccagtgtcca 420
gtgttaggaa aaagccgaaa gtaactccaa caaaggagtc ttacactgaa gaaatagtgt 480
ctgaagcaga atctcatgtt tcaggtatct ctaggaattg tgctt 525

```

&lt;210&gt; 261

&lt;211&gt; 3000

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 261

```

gaattctcgg gtcgaccac gcgtccgacc cacgtgtccg gcttccccgg tgtcccccca 60
tccccctccc cgcgcccccc ccgcgtcccc ccagcgcgcc cactctctgc gccggggccc 120
tcgcgaggcc gcagcctgag gagattccca acctgctgag catccgcaca cccactcagg 180
agttggggcc cagctcccag ttactttggt ttcccttggt cagcctgggg ctctgcccag 240
gccaccacag gcaggggtcg acatggcaga gacactggag ttcaacgacg tctatcagga 300
ggtgaaaggt tccatgaatg atggctgact gaggttgagc cgtcaggcat catcttcaag 360
aatagcaaga caggcaaagt ggacaacatc caggctgggg agttaacaga aggtatctgg 420
cgccgtgttg ctctgggcca tggacttaaa ctgcttacia agaattggcca tgtctacaag 480
tatgatggct tccgagaatc ggagtttgag aaactctctg atttcttcaa aactcactat 540
cgccttgagc taatggagaa ggacctttgt gtgaagggtc ggaactgggg gacagtgaag 600
tttggtgggc agctgctttc ctttgacatt ggtgaccagc cagtctttga gataccctc 660
agcaatgtgt cccagtgcac cacaggcaag aatgaggtga cactggaatt ccacaaaac 720
gatgacgcag aggtgtctct catggaggtg cgcttctacg tcccaccac ccaggaggat 780
ggtgtggacc ctgttgaggc ctttgcccag aatgtgttgt caaaggcgga tgtaatccag 840
gccacgggag atgccatctg catcttccgg gagctgcagt gtctgactcc tcgtggctcg 900
tatgacattc ggatctaccc cactttctg cactgcatg gcaagacctt tgactacaag 960
atccccata ccacagtact gcgtctgttt ttgttaccac acaaggacca gcgccagatg 1020
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atcctcctct tctccaagga cgaggacatt tcgttgactc tgaacatgaa cgagggaagaa 1140
gtggagaagc gctttgaggg tcggctcacc aagaacatgt caggatccct ctatgagatg 1200
gtcagccggg tcatgaaagc actggtaaac cgcaagatca cagtgccagg caacttccaa 1260

```

gggcactcag gggcccagtg cattacctgt tcctacaagg caagctcagg actgctctac 1320  
ccgctggagc ggggcttcat ctacgtccac aagccacctg tgcacatccg cttcgatgag 1380  
atctcctttg tcaactttgc tcgtggtacc actactactc gttcctttga ctttgaaatt 1440  
gagaccaagc agggcactca gtataccttc agcagcattg agagggagga gtacgggaaa 1500  
ctgtttgatt ttgtcaacgc gaaaaagctc aacatcaaaa accgaggatt gaaagagggc 1560  
atgaacccaa gctacgatga atatgctgac tctgatgagg accagcatga tgcctacttg 1620  
gagaggatga aggaggaagg caagatccgg gaggagaatg ccaatgacag cagcgatgac 1680  
tcaggagaag aaaccgatga gtcattcaac ccaggtgaag aggaggaaga tgtggcagag 1740  
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gagaagaagc ggaaacagct caaaaaggcc aagatggcca aggaccgcaa gagccgcaa 1860  
aagcctgtgg aggtgaagaa gggcaaagac cccaatgccc ccaagaggcc catgtctgca 1920  
tacatgctgt ggctcaatgc cagccgagag aagatcaagt cagaccatcc tggcatcagc 1980  
atcacggatc tttccaagaa ggcaggcgag atctggaagg gaatgtccaa agagaagaaa 2040  
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aaggtaaaaga tggaaaagaa atccacgccc tctaggggct catcatccaa gtcgtcctca 2220  
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ggagagaaca agagcaaaaa gaagaggagg aggagcgagg actctgaaga agaagaacta 2340  
gccagtactc cccccagctc agaggactca gcgtcaggat ccgatgagta gaaacggagg 2400  
aaggttctct ttgcgcttgc cttctcacac cccccgactc cccaccata ttttggtacc 2460  
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ctgtttataa tttggggaga gatagggtgg gaggcagggc aatgcaggat ccaaactctc 2640  
atcttacttt cccgacctta aggatgtagc tgctgcttgt cctgttcaag ttgctggagc 2700  
aggggtcatg tgaggccagg cctgtagctc ctacctgggg cctatttcta ctttcatttt 2760  
gtatttctgg tctgtgaaaa tgatttaata aagggaactg actttggaaa aagagaggta 2820  
ggcaggagga aggtttatac gcgagtttgt atgggttttg tggggcgta gccggggact 2880  
ttgcgtaagt gggcccaggg gggagagagg ctccctccgcg agcccccgac gcggttgctg 2940  
gtccaggctc ttgagccaaa gtggtcccaa tggtcgcggtt ggtccaattg gcagcttcgg 3000

<210> 262

<211> 966

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (935)

<223> n equals a,t,g, or c

<400> 262

caaagcagtg cactgaaaaat caatttaagt atttactgga gttgtcttga aggcccaatg 60  
ggaaatgtca gtaagggcac atgagaaaac actttaagaa cctattcttc caaagatctt 120  
tccagtatct tatgacaaca cagtaaatta taccactctc aaatgcaaaa gctgaaacta 180  
ctctgctttc tcacttamct acacttttga ctttcgaaat acatttctct cttcgatat 240  
gagctgcaaa ctctttatat aaaggctcca actctgcagc cctaattatt ctagtggcc 300  
caagaaaaat cctaattggt ttatctaagg agacggaatt ttccaatact gtagaggcat 360  
gtgtgtgtgt ttgctttaag gaagctgttt tggtaataaa aagtcactgr aggtcataaa 420  
ttcatgttaa cacatccagt gtacatgaag taggcaccga gttaaaactat ttgtctacta 480  
tatagcatgt catcttaaaa gccttatttt ttccctcaaaa tattaacttt atttttctcc 540  
ctgtaaaaac aagacacagt taaaatgtag ccttcctcat tttctgggaa tactttctaa 600

caagatatgc ttctttccaa ttggacttct aaatttctag caattctaac agtgcataaa 660  
agaggcaacc ccaaaagtgt agcaggtact gaataacaga tttgcagcct tgggtatcca 720  
cattaaaatt tgaaatctaa gtgaattact tcaagctgat ttcttaggtc aaggagagat 780  
tatggctcctt aaatgcctga taagggtcaca tacacaattt caagtgcatt atagtaaattc 840  
catgtgwaca gctcctacag ctactaacct gcttctgccc tcacgggtag cgtgcacaat 900  
cttcacgcga tgtcctgggt ggggtgggta ggganccagt taaaaaacc ccttggggtc 960  
atgttc 966

<210> 263

<211> 2738

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (762)

<223> n equals a,t,g, or c

<400> 263

ggccggctga gggcacttgc tcttgctgtt tctgcccctg ggtaaacatt caagatggta 60  
catgctgaag ccttttctcg tcctttgagt cggaatgaag ttgttggttt aattttccgt 120  
ttgacaatat ttggtgcagt gacatacttt actatcaaat ggatggtaga tgcaattgat 180  
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<210> 264

<211> 1520

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (18)

<223> n equals a,t,g, or c

<400> 264

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ttccagtgtc ctctgggtgt ttccaagagc aacaagaaac gaataaatct ctgacccttc 180  
tcaggtgcag ccagagagac actagcccac tgatggaygg acagacgtgg gcaggggccg 240  
tgtcactaaa ccaccacca ctgccacagc tgcctacaac agacacatca gatgacactc 300  
cgggcaataa aatgattttc actgaggact tactggTTTT aataataggt cctgggtgtg 360  
agaagtccct caacctattg tgcaatgagt tttgagaagc gggtaagctg tatgttttgt 420  
ggtytgTTTT cataaatkca tctacaggaa gaccaatatt gactgaatga agctttcatt 480  
taaagagcta aaatatgctt tgtgtTTTTa tatgtggata ctactTTtaa cctaacgact 540  
attcattgta tcatagcttg tgatgtattc tgctcayggc ttttaaggta aattgtgcca 600  
tgatccactg ccattctaTat tgctTTtaaca agtcattacc acactactgt tacatcttaa 660  
ttatgcatac agacaggtag acttrTTTTa catatgtgaa ctaactagtt gtcaaagcaa 720  
atgcagattg tattctgcaa gtaaagtcTT tttctctctg aaatttctag ggatgtttct 780  
taagtgaatT tcatattmaa actgaagatt ttagttacaa gaactgagtg cagattaaag 840  
tcttttgtga ttcaaacata gtcaagagta caactgtgat atttcatgga agttatgcaa 900

```

taaaatgtct ctaacctgcg aamaaatctr tcaagcagac gkcacagtac tgaatttgaa 960
accagaaata ctgggttttt atataaatgc ttcataagatt tgttttatga taaagggcac 1020
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<210> 265

<211> 1568

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1318)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1320)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1469)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1482)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1502)

<223> n equals a,t,g, or c

<400> 265

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ctgctggact agctactgcc agttgtccta tcaactgtctc ttctgtagtt gctgccagtc 120
agcaactgtg tgtcactaat acccggaactc cttcatcagt cagaaagcag ttgtttgcct 180
gtgtgcctaa gacaagtcct ccagcaacag tgatttcttc tgtgacaagc acttgtagtt 240
ccctgccttc tgtctcctct gcacctatca cttagcgggca agctcccacc acatttctac 300
ctgcaagtac ttctcaagca cagctttctt cacaaaagat ggagtctttc tctgctgtgc 360
caccaccaa agagaaagtg tccacacagg accagcccat ggcaaacctt tgtaccccat 420
cttcaactgc aaacagttgc agtagctctg ccagcaacac cccgggagct ccagaaactc 480

```



```
accatccag tagtccact cctacttcca gtaacacaca agaggaggca cagccatcca 540
gtgtgtctga ttttaagtcct atgtcaatgc cttttgcac taactcagaa cctgctccat 600
tgactttgac atcaccaga atggttgctg ctgataatca ggacaccagt aatttacctc 660
agttagctgt accagcacct cgagtttctc atcgaatgca gccagaggt tctttttact 720
ccatggtacc aaatgcaact attcaccagg atccccagtc tatttttgtt acgaatccag 780
ttactttaac accacctcaa ggcccaccag ctgcagtgc gtttcttcag ctgtgaacat 840
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cccagccaca cttttcaatc acttcagcag tctttttgat agtagtcagg tgccagctaa 960
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agtgggga 1568
```

<210> 266

<211> 545

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (338)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (394)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (508)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (540)

<223> n equals a,t,g, or c

<400> 266

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agtaagtgcg tgattttgtt tctttttttc aaacagtttt gatttgaagt tccttttaaag 60
gctgttggag cttttgcaaa taccagcta atgaaaggca ctttaagattg ggcccatctg 120
catcatcaca ttgaagtttt ctgtctaaag gaaggttcca gctacctgtt acccttttgc 180
taaacacagt tgcagtgttg cagtgtatct catgacaaaa gtgcactcta gttttctgtg 240
aaatgattat tttctctgaa atgattcttg gtcattgtga gcttctaaat gttaaagaga 300
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```

acatagtgtct tttgacctgt gggaaatctc atcttggnnta ccatgggtgct gcacagacca 360
tcaggaagaa ctgaaaagtt caggcaactt gagnaataa aagtcaccac cmgcaaggar 420
gctgtctaaa ataaccggra gattattamc ccagcacgtg gragartgtg ctagtgggta 480
gatgttwtgg aargctacta ggggtccncc cttaggtgcc tgtgctagtc ctaagggggn 540
ggtgg 545

```

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<210> 267
<211> 762
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (712)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (740)
<223> n equals a,t,g, or c

```

```

<400> 267
aattcggcac agggaatggc ggggtctcct gagttgggtg tccttgacct tccatgggac 60
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tttcgggtgc gctgcactgc gaagcgggct gtgaccgaaa tgctacaact gtgcggccgc 180
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gcgcagtggc cttttgaatc agctgtgcaa gagaatatca gcattaatgg gcaagcatgg 300
caggaagctt cagataattg ttttatggat tctgacatca aagtacttga agatcagttt 360
gatgaaatca tagtagatat agccacaaaa cgtaagcagt atcccagaaa gatcctggaa 420
tgtgtcatca aaaccataaa agcaaaaacaa gaaattctga agcagtacca ccctgttgta 480
catccactgg acctaaaaata tgaccctgat ccagtccttg cctgcattaa ttgaacaagg 540
agagggattt tcccaagttc tcaggatgca acctgggtat caccttcaga ggattcacca 600
agaagtcttt ttcagttgtc ataaggaaac cagatgctwa acctgagact ttatwacaca 660
gattgaaacc acaccaacag aaactgggtt caggaaaaac cttttacgtg gnacttgaaa 720
aagaaagcaa acttaaagan ttggccccc aaagaaaaat gg 762

```

```

<210> 268
<211> 1433
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (893)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (947)
<223> n equals a,t,g, or c

```

&lt;400&gt; 268

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gcggaggcct ccgtagtgat ctggccttta ctttctcccc gagtcacggg aagccctcgt 60
tgacctcaca ggggtggacac ccggaggcga gatcccggtc cgcggagcag agccctttct 120
catggaacag gacgtgtcgg ggccgctgct ggggaaagca gccgggcccc cagatgctgg 180
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ctgcagcagc gtctcctgag agagaaggag gccaaagatca ggaaggcctt ggacaggctt 360
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gccatccagc caggggacca gctgtttgcc acgctggacg tcacggccca cgcgggcacg 540
ctgccctcac gcatgaccgt cctgtacgtg gacaccatcg gcttcctctc ccagctgccg 600
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ttgcacgtga gggacgtcag ccaccccgag gcggagctcc agaaatgcag cgttctgtcc 720
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aaggtggacc tcgtgcccgg gtacagcccc acggaaccga acgtcgtgcc cgtgtctgcc 840
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cctcgtgcc tgcgtgtaac tgctttccct cggaatgttt ccgtaacagg acattaaacc 1380
tttgwtttta cttccgtgaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggg 1433
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&lt;210&gt; 269

&lt;211&gt; 2278

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (205)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (335)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2277)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 269

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cacagtatgg aaatacgggg aagcaggaga tagatccgga aaaataaaagt tgagaccaga 60
ctgtagactg tcttgaatgc caagctaaag tgtttatact ttattcagta aataaacaaa 120
actggtagcg caagaaaagg agtgagcaag tggttaacaac ttaaagacaa ttcattttgc 180
tcccacgtgt tatatcatga atttnttggg cccaaagtca tatatagaat tttttaaata 240
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attgatactt gattaaagaa agcacaaaga cataaaaaata aaacattctt ggtgggggga 300  
aatggttttt aagaggcatt ttattaattt taccncaggt atatttgccc tgtgtttttac 360  
aaacaaaaar gaggtatgtg ggttacatgt atgaaacact ggatcagaag gaccagtat 420  
ttgatgcaaa aggaatagaa acagtcagaa gagattcctg ccctgctgtt tctaagatac 480  
ttgagcgttc tctaaagctg ctatttgaaa cgagagatat aagtctaatt aaacagtatg 540  
ttcagcgaca atgtatgaag cttctggaag gaaaggccag catacaagac tttatctttg 600  
ccaaggaata cagaggaagt ttttcttata aaccaggagc ttgtgtgcca gcccttgaac 660  
ttacaaggaa aatgctgact tatgaccggc gctctgagcc tcaggttggg gagcgagtgc 720  
catagctcat catttatggg acccccggag taccacttat ccagcttgta aggcgcccag 780  
tggaagtcct gcaggacca actctgagac tgaatgctac ttactatatt accaagcaaa 840  
tccttccacc cttggcaaga atcttctcac ttattgggtat tgatgtcttc agctggatc 900  
atgaattacc aaggatccat aaagctacca gctcctcgcg aagtgaacct gaaggcgga 960  
aaggcactat ttcacaatat tttactacct tacactgtcc tgtgtgtgat gacctaaact 1020  
agctaggcat ctgtagtaaa tgtcggagcc aacctcagca trttgcagtc atcctcaacc 1080  
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tctcccgagt aaatagagaa ttgtccaagg caccatatct ccggcagtta ttagaccagt 1260  
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aagactatga agacwtctat gctaaccgaa ttaaaatgta cttgttgatc tctgaatagc 1440  
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caggtgttgg atttgctcca gtatgtgtac catcttgtaa attcatttga gtagatcatg 1560  
tttacttccc agtgggaagga gcactgaaaa cctcttaaaag aaaaagcatt tgttgtttt 1620  
ccttgaactg tctgtatcaa gacgtgttac ttcgagatat ccattcactt tataattttr 1680  
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tcaaagtaga tcgttatatt gatcaaaactg tgcaaacagt agtaccacgt gtagcatttt 1860  
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aaattttatt ccatttgctt gttttgtata gacatttcta ttgcttctaa atatacttaa 2040  
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aatgtgtatt tagaatattt gtataactgt gtaaaataaa aaaggaatta tgtggtcagt 2160  
gcattgtttt ttaaaactgga aatcattttg ttttaaaagt taataatgga aaccatatta 2220  
aaattgaata aaatataaaa taatataaaa aaaaaaaaaa aaaaaaaaaa aaaattnc 2278

<210> 270

<211> 2533

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1280)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2514)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2531)

<223> n equals a,t,g, or c

<400> 270

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cggaatagga gcgttgccgag acgggtcgggt ccaagtgggc ctggggcgcg gggagaggcg 60
gggtctgtcct cgggaactgc aaggccctgt gagcgggagg actgggatcc cggccgcggc 120
tgctggaagc gtcgaagctc agcggggccg cggacactga cctgtgctta gaactcatcc 180
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gccgccgggt tcaagcactg tcttcctgtt ggccctgaca atcatagcca gcacctgggc 360
tctgacgccc actcactacc tcaccaagca tgacgtggag agactaaaag cctcgctgga 420
tcgccctttc acaaatattg aatctgcctt ctactccatc gtgggactca gcagccttgg 480
tgctcagggt ccagatgcaa agaaagcatg tacctacatc agatctaacc ttgatcccag 540
caatgtggat tccctcttct acgctgccc aaggcagccag gccctctcag gatgtgagat 600
ctctatttca aatgagacca aagatctgct tctggcagct gtcagtgagg actcatctgt 660
taccagatc taccatgcag ttgcagctct aagtggcttt ggccctccct tggcatccca 720
agaagcactc agtgccctta ctgctcgtct cagcaaggag gagactgtgc tggcaacagt 780
ccaggctctg cagacagcat cccacctgtc ccagcaggct gacctgagga gcatcgtgga 840
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agaaggactg gaaacaacag cgttatttgt ggctgccacc tacaagctca tggatcatgt 960
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<210> 271

<211> 1618

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1612)

<223> n equals a,t,g, or c

<400> 271

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<210> 272

<211> 470

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (395)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (404)

<223> n equals a,t,g, or c

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<222> (429)  
<223> n equals a,t,g, or c

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<210> 273  
<211> 983  
<212> DNA  
<213> Homo sapiens

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<222> (879)  
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<220>  
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<222> (915)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (930)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (967)  
<223> n equals a,t,g, or c

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tcggatgtga tccgccttat tatgcagtac ttgaaggaga acagtttaca tcgggcggtta 180  
gcaccttgca ggaggagact actgtgtctc tgaatactgt ggacagcatt gagagttttg 240

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&lt;210&gt; 274

&lt;211&gt; 2006

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 274

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ggtaataatg ctaaccaaga gatcaatgcc agatttttct cttggggtaa gttagctgaa 1860
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<210> 275

<211> 1376

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1368)

<223> n equals a,t,g, or c

<400> 275

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<210> 276

<211> 2594

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

&lt;222&gt; (2198)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 276

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&lt;210&gt; 277

&lt;211&gt; 679

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<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>  
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<222> (617)  
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<220>  
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<210> 278  
<211> 1478  
<212> DNA  
<213> Homo sapiens

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<210> 279

<211> 2321

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (474)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (483)

<223> n equals a,t,g, or c

<400> 279

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<210> 280

<211> 1693

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (200)

<223> n equals a,t,g, or c

<400> 280

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atctcggggc ccagaccagt cgattgggag gtccgcccct cccttcagcg acttggtctg 180  
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ccctctgtaa aagatgttaa catttctagt tttcttttag tgtgaatttt taaaatagca 1620  
gttattcaag gttttagaac ttaataaata ctagtcaga aaaaaatgtg taaatcgttt 1680  
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<210> 281

<211> 258

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (42)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (64)

<223> n equals a,t,g, or c

<400> 281

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gctnccggca cccatgggtcc cagtgccttg gaatggagac ggccagttct ggggccagat 120  
gtgggtgctct ggaatccagt cccatttctt tcctggccac gagctgtccc agcggcctct 180  
tcagccgcat tcagccccta cttacctggg gaccccggtt ggggcacgag aagcaccagg 240  
ggggttaggg cccaaagg 258

<210> 282

<211> 1764

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1764)

<223> n equals a,t,g, or c

<400> 282

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gtgccaggta ccccgcatcg tgacccttca cttgggtgtct taggaagtca agctgaggga 120  
tgctgagttc tcccttgctg gccctgcatg ccccgccctt gcttttcatc cccaccctct 180  
gcaaacatgg aggagcccc ccttctcac ctcgggtctcc tagccctga catggagaas 240  
cctgagacaa gccacagaac cctctttttc taaaatggag acaataattt cctacctccc 300  
aaggggagcag agaggcctcg tggcacgtcc gtggccaggg agccactgt cctggctggc 360  
ggcgggatcg tgcrcctctc tgtctcccg atgagaagcc ccgtttccat ggtcttgacc 420  
cttcctttct cccggctgtc agaactgggt ctcttgattt tgcccctaca ttatgcctct 480  
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attttcmaaa tttcagaact ttcn 1764

<210> 283

<211> 799

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (750)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (760)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (769)

<223> n equals a,t,g, or c

<400> 283

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ttgtgggaga gttccccgc ctcagactcc tgggtttttc caggagacac actgagctga 120  
gactcacttt tctcttctcg aatttgaacc accgtttcca tcgtctcgta gtccgacgcc 180  
tggggcgatg gatccgttta cggagaaact gctggagcga acccgtgcca ggcgagagaa 240  
tcttcagaga aaaatggctg agaggccac agcagctcca aggtctatga ctcagtctaa 300  
gcgagctaga cagccacttt cagaagcaag taaccagcag cccctctctg gtggtgaaga 360  
gaaatcttgt acaaaaacat cgccatcaaa aaacgctgt tctgacaaca ctgaagtaga 420  
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tgtcccggca tcaactgctgg gcatgaggag agggctgaac tcaagattgg aagcaactgc 600  
agcctyctca gttaaaacac gtatgcaaaa acttgcaagag caacggcgcc gttgggataa 660  
tgatgatatg acagatgaca ttctgaaaag ctcaactcttc tcaccaatgc catcagagga 720  
aaaggytgct ttcccttccc agacctctgn ttttcaaaan gccttcggna acttccagtt 780  
ggccaaaaaa ggggcccgt 799

<210> 284

<211> 1489

<212> DNA

<213> Homo sapiens

<400> 284

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ctcttgatca gaatttcag gtggcctacc cagactactg cccgctcctg atcatgacag 180  
atgcctccct ggtagatttg aataccagga tggagaagaa aatgaaaatg gagaatttca 240  
ggccaaatat tgtggtgacc ggctgtgatg cttttgagga ggatacctgg gatgaactcc 300  
taattggtag tgtagaagtg aaaaaggtaa tggcatgccc cagggtgtatt ttgacaacgg 360  
tggaccaga cactggagtc atagacagga aacagccact ggacaccctg aagagctacc 420  
gcctgtktga tccttctgag aggggaattgt acaagttgtc tccacttttt ggqatctatt 480  
attcagtggg aaaaattgga agcctgagag ttggtgaccc tgtgtatcgg atggtgtagt 540  
gatgagtgat ggtccacta gggatgatg gcttcagcaa ccaggaggga ttgactgaga 600  
tcttaacaac agcagcaacg atacatcagc aaatccttat tatccagcct tcaactatct 660  
ttaccctgga aaacaatctc gatttttgac ttttcaaagt tgtgtatgct ccagggttaat 720  
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<210> 285

<211> 702

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (695)

<223> n equals a,t,g, or c

<400> 285

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agcatttttt atcaggcagg accagggtggc acttccacct ccagcctctg gtcctaccaa 120



tggattcatg gagtagcctg gactgtttca tagttttcta aatgtacaaa ttctttatagg 180  
ctagacttag attcattaac tcaaattcaa tgcttctatc agactcagtt ttttgtaact 240  
aatagatttt tttttccact tttgttctac tccttcacct atagcttttt aaaaaaatct 300  
ccccagtaga gaaacatttg gaaaagacag aaaactaaaa aggaagaaaa aagatcccta 360  
ttagatacac ttcttaaata caatcacatt aacattttga gctatttcct tccagccttt 420  
ttagggcaga ttttggttg tttttacata gttgagattg tactgttcat acagttttat 480  
accctttttc atttaacttt ataacttaaa tattgctcta tgtagtata agcttttcac 540  
aaacattagt atagtctccc ttttataatt aatgtttgtg ggtatttctt ggcattgcac 600  
tttaattcct taccctagcc tttgggcaca attccygtgc ttcaaatga gagtgacggc 660  
tgggcatggt gggctcccgc ctgtaaattc cagtnacttg gg 702

<210> 286

<211> 1175

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1153)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1166)

<223> n equals a,t,g, or c

<400> 286

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cttcaaaatt atttgggcat agtgctctat gtttaataaa ggtttttata gatgttttat 180  
tccatatgtc ttcacaagtc aggaccaca attaccctg ttttgtttga acagcagtg 240  
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gccccttcct gcctgccttc ccatattggt cccttgacat tgacaaaagc acagtgactg 480  
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aaaattgcag atttagggag cctgccaat taacagtctc atcaggtgat tcttttcaac 660  
agtaatgttt gagaattact gggttaaatt gtgggaaagg gtccagattt taaagggtgt 720  
ttaaggttgc cctctgccga tactgtttgt ctttctactg tttcatcccc taactcccc 780  
caaccctcaa attaaaacta gaactataga tccacatgaa cgcacgcctg agatttggcc 840  
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<210> 287

<211> 2873

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (829)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2870)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2871)

<223> n equals a,t,g, or c

<400> 287

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tgcaggtctt aaacgacaaa aatgtcagca atgaaaaaaa tacagaaaat tgcgacttcc 180
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<211> 2104

<212> DNA

<213> Homo sapiens

<220>

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<222> (44)

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<220>

<221> misc feature

<222> (497)

<223> n equals a,t,g, or c

<220>

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<222> (1323)

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 <212> DNA  
 <213> Homo sapiens

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 <223> n equals a,t,g, or c

<220>  
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 <222> (1211)  
 <223> n equals a,t,g, or c

<220>  
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 <222> (1215)  
 <223> n equals a,t,g, or c

<220>  
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<210> 290

<211> 1591

<212> DNA

<213> Homo sapiens

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<222> (768)

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<220>

<221> misc feature

<222> (1538)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1560)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1562)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1568)

<223> n equals a,t,g, or c

<400> 290

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<210> 291

<211> 2386

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (448)

<223> n equals a,t,g, or c

<400> 291

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&lt;210&gt; 292

&lt;211&gt; 983

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 292

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983

<210> 293

<211> 2655

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (2611)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2641)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2651)

<223> n equals a,t,g, or c

<400> 293

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tctaaggtaa atatnaaatt tttaagttgt ntaatgtgtt aaactaactg catatgcttg 2640  
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<210> 294

<211> 1738

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (854)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1679)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1693)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1717)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1729)

<223> n equals a,t,g, or c

<400> 294

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caaccatgat gcaattgtag ttcgaaagat ggctatctca gctgttgctg gtatccttaa 180
acagctaaaa agaaccacaa aaagctgacc attaaccctt gtgaaatcag tggatgccct 240
aaacccaccc aaattattgc tggatgtagg cctgataatc attgggttgc ttatgacagc 300
aaaactatac caagaactaa aaaagaatgg gagtcaagtt gctttgtgga aaaaactcac 360
tggggatact acacctggcc aaagaatatg gttgtttatg ctgggtgtgga agagcagcct 420
aagcttggca gaagcaggga ggatatgaca gaggcagaac agattatatt tgatcatttt 480
tctgatccta aatttggtga gcagttaatt acttttctat cattagaaga cagaaaagga 540
aaagataagt ttaatccacg acgtttttgy ctctttaagg gtatattcag gaattttgat 600
gatgccttcc tgccagttct gaagcccat ttagaacatt tgggtgcaga ttcacatgaa 660
agcaccacag gatgtgttgc agaaattata gctggtttaa tcagaggttc taagcactgg 720
acatttgaaa aggtggagaa gctttgggag ctctgttgcc ctctgcttag aacagcactg 780
tccaatatta ccgtagaaac ttataatgac tggggagcct gtatagcaac atcctgtgaa 840
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ccagcaagaa tggagagtgc ctgaactatt gcacagacta ctgaagtact tggaaaccaa 1020
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catgatagat gtatctttgc caaataccac accaaccata tcgcctcatg tccctgagtt 1140
tactgctcga attctggaga aattgaaacc tctcatggat gtggatgaag aaattcagaa 1200
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gctttaccct catcaagtgc ctttggtact tcaggtgcta aaacaaacag caagaagcag 1500
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ctttatttcc taaacaatga agatgcagtt aaaggatatc aggtgggctg ggttataagt 1620
cttttgggag ggacgaacca actgggaggg ttcgggagaa atgggctggc ctaacttanc 1680
cttaagccgg gnttggctaa acagtggtaa acttttncct taacccatng ggaccagt 1738
```

<210> 295

<211> 1020

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<400> 295

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ctgctgttcc ctccgsctgg agcacgtcca gctgcacccg gaggcgatg gctgccaaaca 180
cgtggtggaa tttgacttcc tggggaagga ctgcatccgc tactacaaca gagtgccggg 240
ggagaagccg gtgtacaaga acttacagct ctttatggag aacaaggacc cccgggacga 300
cctcttcgac aggctgacca cgaccagcct gaacaagcac ctccaggagc tgatggacgg 360
gctgacggcc aagggtgttc ggacctacaa cgctccatc actctgcagg agcagctgcg 420
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ccgagtcgtg gccattctct gcaaccatca gcgagcaacc cccagtacgt tcgagaagtc 540
gatgcagaat ctccagacga agatccaggc aaagaaggag cagggtggctg aggccagggc 600
agagctgagg agggcgaggg ctgagcacia agcccaaggg gatggcaagt ccaggagtgt 660
cctggagaag aagaggyggc tcctggagaa gctgcaggag cagctggcgc agctgagtgt 720
gcaggccacg gacaaggagg agaacaagca ggtggccctg ggcacgtcca agctcaacta 780
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tgaattctaa cgacgagccg tgttgaaact tcttttgtat gtgtgtgtgt ttttttact 960
attaaagcag tactggggaa ttttgtacaa waaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
```

<210> 296

<211> 684

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (660)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (675)

<223> n equals a,t,g, or c

<400> 296

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tgtacatctt ccaaagcttt taaaataaaa aagaggagga gttacacttg cagaatgtat 120
atcttctggg atgcttctcc ctactccact ggacactgtt tgaaagtgtg tagtttataa 180
tattcttacc taggctgtgt tggtcagctt agaatatcta agtgatagga taaaactaaa 240
gctgagtggc aaactgccag tctatatact gcatttagtc tataggctgt tttgtttggc 300
ccacaaagca ttttattatt taagtttatg ccaacattta agaatcaaga atttcccaga 360
cattcagatt tctgacttca attgaaaatc tgacagtata aaccctatta tattcctgca 420
tggcataaaa tcttcagtgt ctgaatggtg atatccactt ttagaagag tactctaccc 480
tgttctgcat tcatacaacc taagccaacc cgcccttcac catcccactt ctctttcagg 540
ttatctgctt aggctggtag gcatttgtgt ttataaacct tgaactcaag ctgctagatg 600
gtcagttgca ttgtgaactg aactatctga atgatttttc attgtaaata tatagctatn 660
ggaccacttt aaatnccct ttct 684
```

<210> 297

<211> 1838

<212> DNA

<213> Homo sapiens

<400> 297

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ggagaagagg ctaatgatga caagaagcca accactaaat ttgaactaga gcgagaaaca 180
gaacttcgct ttgaggtgga ggcattctcag tcagttcagt tggagttgtt gactggcatg 240
gcagagatct ttggcacaga gctgacccga aacaagaaat tcacctttga tgctggtgcc 300
aaggtggctg ttttcaactt gcatggctgt tctgtgcaac tgagcggccg cactgaggtg 360
gcttatgtct ccaaggacac tcctatgttg ctttacctca aactcacac agccttgga 420
cagatgcgga ggcaagcggg aaaggaagaa gagcgaggtc cccgagtgat ggtagtgggc 480
cccactgatg tgggcaagtc tacagtgtgt cgcttctgc tcaactacgc agtgcgtttg 540
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accatggggg cctctacat cgagcggcct gcagatgtcg aagagggttt ctctatccag 660
gcccctcttg tgtatcattt tggttccacc actcctggca ctaacatcaa gctttataat 720
aagattacat ctcgtttagc agatgtgttc aaccaaaggt gtgaggtgaa ccgaaggcat 780
ctgtgagtggt ctgtgtcatt aacacctgtg gctgggtcaa gggctctggt taccaggctc 840
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tgtacaatga actgaaacgg gactccccc ctttgtacgc actgtgctgc tccctaaatc 960
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gcaccaccta ctgagtgtta gcactgmca gggtaacag gagaacctgt ccgagacaag 1260
tgtagctggc ttcattgttg tgaccagtgt ggacctggag catcaggtgt ttactgttct 1320
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tggactagta gaaagtccat attctacct taaaaacagg tagtggtaac ctgactcttc 1560
taatcttgaa ccaaaaggaa aaccatgaga ctgtaattgg tttcttagac cacctaagat 1620
gccactttga attctctaag accctggaga attgcatttc tttcactgtg ctactatgtg 1680
gtttttaaaa aatcaatgct ttatattcca tatgtggttc ttaccattt atctaggatg 1740
aaagtgtgaa ttagagggac tccttccaat aaagttcaaa cttaaaaaaa atcattttta 1800
taaataattt tgccatatca taaaaaaaa aaaaaaaa 1838
```

<210> 298

<211> 1635

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1609)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1635)

<223> n equals a,t,g, or c

&lt;400&gt; 298

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tcgccggttt gcagactgag ccgcgtcggg tgtgcgccgc tgctgctgtt gcctctgtct 120
tcgcgtcacc acagaggcaa gacaagggtc catatcgcgg catccggctc ccgccgtct 180
tcaggagaga aagaaaaaat aaaatatact tggggaagtt gtacctgcca gaattagcaa 240
gagctttctt taagaagaca tttgtcaaac tcaacaaatt gaaggttaac accttaagag 300
ttgtagttaa tgaccagaaa tatggacaga cttcttagac ttggaggagg tatgcctgga 360
ctgggccagg ggccacctac agatgctcct gcagtggaca cagcagaaca agtctatata 420
tcttccttgg cactgttaaa aatgttaaaa catggccgtg ctggagttcc aatggaagtt 480
atgggtttga tgcttggaaga atttgttgat gattataaccg tcagagtgat tgatgtgttt 540
gctatgccac agtcaggaac aggtgtcagt gtggaggcag ttgatccagt gttccaagct 600
aaaatgttgg atatgttgaa gcagacagga aggccggaga tggttgttgg ttggtatcac 660
agtcaccctg gctttgggtg ttggctttct ggtgtggata tcaacactca gcagagcttt 720
gaagccttgt cggagagagc tgtggcagtg gttgtggatc ccattcagag tgtaaaagga 780
aaggttgtta ttgatgcctt cagattgata aatgtctaata tgatggctctt aggacatgaa 840
ccaagacaaa caacttcgaa tctgggtcac ttaaacaagc catctatcca ggcattaatt 900
catggactaa acagacatta ttactccatt actattaact atcggaaaaa tgaactggaa 960
cagaagatgt tgctaaattt gcataagaag agttggatgg aaggtttgac acttcaggac 1020
tacagtgaac attgtaaaca caatgaatca gtggtaaaaag agatgttgga attagccaag 1080
aattacaata aggctgtaga agaagaagat aagatgacac ctgaacagct ggcaataaag 1140
aatgttggca agcaggaccc caaacgtcat ttggaggaac atgtggatgt acttatgacc 1200
tcaaataattg tccagtgttt agcagctatg ttggatactg tcgtattttaa ataaagcaac 1260
gaaaaacgct attaatgatg ccttcagtgt atattcctct gttgttccta atgctcaaaa 1320
tcaagggacc tctgaaggtg tacttggtta aatgtaagac atctggcatc atttgcagca 1380
ctgtaacacc ttcagtctca gttgtgcaat tacttctgtt tctttagtca gggctcttgc 1440
agattctaaa gttatacatg aatacatcaa agtggacaaa ttttgtaag atcccattta 1500
atatttgaaa aaatcagtag cacaaatata ttttgattgt cacttacaaa ataaaaatata 1560
tttacagtcw aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaana aaaaaaaaaa 1620
aaaaaaaaaa aaaaan                                     1635
```

&lt;210&gt; 299

&lt;211&gt; 868

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (790)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (857)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (860)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 299

```
gctgaggggt agcgatgcgg gctccgggga tgaggtcgcg gccggcggggt cccgcgctgt 60
tgctgctgct gctcttcctc ggagcggccg agtcgggtcg tcgggcccag cctccgcgcc 120
gctacacccc agactggccg agcctggatt ctccggcgcgt gccggcctgg ttcgacgaag 180
ccaagttcgg ggtgttcac cactggggcg tgttctcggt gccgcctgg ggcagcgagt 240
ggttctggtg gcaactggcag ggcgaggggc ggccgcagta ccagcgcttc atgcgcgaca 300
actaccgcc cggttcagc tacgccgact tcggaccgca gttcactgcg cgcttcttcc 360
accggagag tgggcccagc tcttcaggc cgcgggcgcc aagtatgtag ttttgacgac 420
aaagcatcac gaaggcttca caaactggcc gagtctgtg tcttggaact ggaactccaa 480
agacgtgggg cctcatcggt atttggttgg tgaattggga acagctctcc ggaagaggaa 540
catccgctat ggactatacc actcactctt agagtgggtc catccactct atctacttga 600
taagaaaaat ggcttcaaaa cacagcattt tgtcagtga aaaacaatgc cagagctgta 660
cgacctgtt aacagctata aacctgatct gatctggtct gatggggagt gggaatgtcc 720
tgatacttac tggaactcca caaattttct ttcattggsty tacaatgaca gccctgkcaa 780
ggtctctgtn gggtcgttga gggcaaggac cctgttttat tcaacctggg aactcagtg 840
ttgccacatg tgaggcncan ggtagttc 868
```

&lt;210&gt; 300

&lt;211&gt; 547

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (526)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (542)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 300

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ccacgacgtc cscggaacgc tsgettgcgg ggccgtgagcc tctccgcgg cgcaggctct 60
gctcgcgcc gctcgtccc gcagccatgc ccaccaccat cgagcgggag ttcgaagagt 120
tggaactca gcgtcgctgg cagccgctgt acttggaat tcgaaatgag tcccatgact 180
atcctcatag agtgccaag tttccagaaa acagaaatcg aaacagatac agagatgtaa 240
gcccatatga tcacagtcgt gttaaactgc aaaatgctga gaatgattat attaatgcca 300
gtttagttga catagaagag gcacaaagga gttacatctt aacacagggt ccacttccta 360
acacatgctg ccatttctgg cttatggttt ggcagcagaa gaccaaagca gttgtcatgc 420
tgaaccgcat tgtggagaaa gaatcgagt gtgaaacaga acaatatctc actttcatta 480
tactacctgg ccagaatttg gagtccctg aatcaaccag cttcanttct caatttcttg 540
gntaaag 547
```

&lt;210&gt; 301

&lt;211&gt; 865

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 301

```
ttagtagaga tggggtttca ccacattggc caggctggtc tcaaactcct gacctcaagt 60
```

gaatccacct accttggcct accgaggtgc tggaattaca ggtgtgagcc accgcgccctg 120  
gcctaatact gctttattac aacgttatct gtgggtcgga atccttttat attgggtaac 180  
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ctggtgaatc ttctttttca cttcactttc agtgagctga aagtaaccaa actaaatata 300  
tgtatttgt aaagggacag gacaagacag ccttaaaaaa ttgaatatag ttggtgagac 360  
aactcagaag tacaggtttg agcatccctt attcaaaatg cttgagaagt gttttgggtt 420  
ctggaatatt tgcattaatg cttgccagtt gagcatccca ggtccggaaa tccacagtgc 480  
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ttttgtgtta ctgtgtgact ttcttttact caaaaacagc accataaaat ttctgacaag 780  
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aaataaaatt tttataccac tttct 865

<210> 302

<211> 815

<212> DNA

<213> Homo sapiens

<400> 302

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ctgagaaggg gacaaaaaga cctttccttt catgtccaga agaattgtatg taactaaagc 180  
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aacacacaca cagagcaaac tccctttcat aaaagccctc atatccactg gcagtccccg 420  
ttcgcacatc ggtctccatg tgtaccgcca aagtcaatta tgtttgaaag cttttggtgg 480  
atgttatggg gcaaagttat gatttacaca gaagcaactg ccaaattctgt ggtgcaacca 540  
ctatctccag tgaaatattg tataacacca ttggaacta ctgaaaagac agtggctttt 600  
ctacagtact cttccttatt gcaccatttt tgtattaacg tagaaactaa gcatacagaat 660  
ttatgaacaa agaatatgtt atttttccyt ttgcyctaaa atactgagga ttggggaaag 720  
caattcyttt ttaaaaaaat tttggaataa ctaycttttg rtacacattc gggsggttac 780  
ggtgttgggg atttaggcag gactatccaa atccc 815

<210> 303

<211> 1919

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1907)

<223> n equals a,t,g, or c

<400> 303

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ttattatatt cagagtatgt ttttaagtgt atcttaatat atacattttt taggacatct 180  
taaatactaaa caaaaaataa aatgaacatc tcttgaaacc tgtaaaaaca accagttaaa 240

gccacagatg gctttcagcg cagtagcagc agaggccagt ggactctgag gactcctgag 300  
gggcggggcg tgtagccagc caggtgcatg ccgggaccat ggcccccata cttggctgct 360  
tcctgtgaca gtgaaataca tccttcaagg tggcagctgt tagggctgaa tcttctggag 420  
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tttttctgtg ggttttgtgt tgtctttttt atgttaaaaa gaaatccagt ttgtgttttt 660  
ctatagraaa agtaaaaagat caggttatac tttaggttag gggttctatt tattcctggt 720  
agtaaaataa attaacaat ttctttgttt aacaaaagat taatctttaa accactaaaa 780  
tacatagact gattgattat tcaacacatt ggaattgatg tcggtcatag tttcctgaag 840  
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catttttaag atagaacaca aaacttgaaa gaagttttat gcgtgtgaca gtgtatggg 1140  
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agtgtcagt gaagtacacc tgtgtggccc agttctgaaa gctttatata gttgaatttt 1260  
aagtggggtt gataaacacct tggactgta gtgttaaaaa tctagtgggt tgaccttta 1320  
atgcaacagt ttttaaaata tattgctgca ttttatagaa tagtaaaggt acgattatac 1380  
ttgagatttt cctccatttt tatttcttcg tgaacataga gtttggggcc gaaaatggtt 1440  
ttaaagtatg tgtttgagtt aaatataaag ttggttcact tcaaagctaa aaaattgtta 1500  
aacttgcagc ttggtattgc agagaagatt ttataagaat ttgcttttag agaatgccac 1560  
tttggtgaa ctacaagtgt aggccaccat tataatttat aaatacagca tacttcaaaa 1620  
ctgtttgtta tctcttgta ccatgtatgt ataaatggac cttttataac cttgttctct 1680  
gcttgacaga ctcaagagaa actaccagc tattacacaa gccaaaatgg gagcaaggcc 1740  
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taaagtatgt tgagcagaat gttgtacttg aaaatgctat aagtgagatg gtatgaaata 1860  
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<210> 304

<211> 157

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (112)

<223> n equals a,t,g, or c

<400> 304

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ttttacagga aaaaaaaaaa ttgtatagtt gtgggtgacgt tcctcacaca gngcaccagc 120  
ttcaggggagt ctgtcccttg cagaccctg aaccgg 157

<210> 305

<211> 343

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature



<222> (270)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (291)  
<223> n equals a,t,g, or c

<400> 305  
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gatgtcattg cagaacagag tkttagtggg tattttgttt ttgttttaca gattattata 180  
agtataggcc tcatgtttta tgtagttcat cgagctcaag tgggaattgaa tgcagctatt 240  
gtagcttggtg aaatgggaac tggaaatctn ctctgggttaa aaggcaatca nccaaatacc 300  
agtgggctct ttcattctac aacaagagga ccctaacatt ttt 343

<210> 306  
<211> 696  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (553)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (585)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (593)  
<223> n equals a,t,g, or c

<220>  
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<222> (649)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (661)  
<223> n equals a,t,g, or c

<400> 306  
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cagcgccagc cccagcgagc tgacagccgc cgggcgccct cgaccctcgg atagttgtaa 180  
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ttccggactt aaactggtaa aacctgatga cattggaaga ctagtttcct acaccctgc 300  
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gtcaccgatt gtgagcccta ggattgtaga acttgaaact gaaagcaagc gcttgcataa 420  
caaggaaaat caacatgtgc aacagacact taatagtaca aatgaaatag aagcactaga 480  
gaccagtaga ctttatgaag acagtgcctat tcctcaattt ctctacaaag tggcctcagt 540  
gaccatgaag aangtagcct tctggaggag aaattcgggtg acagnctaca atnctgggtg 600  
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<210> 307

<211> 396

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (394)

<223> n equals a,t,g, or c

<400> 307

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tyttaatatg ctaatgtgga ggtcacctag ttaccctaag ggagaaaagc aaggcaagga 180  
ccactgcac agcaagttcc cccttgaag ccacgggcg cactgcccac aaatgcacat 240  
aatctctgca gaaatacaaa agccctaagt ctggctgcac tggggacaca ggtaggagga 300  
aattttcccc tgtaagcagt tttgaattct gaactatgtg gacagamcac caattttaaa 360  
acaatgaaag tgagttggct gggcacatgg tttngc 396

<210> 308

<211> 549

<212> DNA

<213> Homo sapiens

<400> 308

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cccagctgct gccttcatat tgaaggTTTT tgagttttgt ttttggcttt aatttttctc 180  
cccgttccct ttttgtttct tcgttttgtt tttctaccgt ccttgtcata actttgtgtt 240  
ggagggaaacc tgtttcacta tggcctcctt tgcccaagtt gaaacagggg cccatcatca 300  
tgtctgtttc cagaacagtg ccttggcatc cccacatccc cggaccccg cttgggacccc 360  
caagctgtgt cctatgaagg ggtgtgggtg gaggtagtga aaaggcggt agttgggtgt 420  
ggaaccaga aacggacgcc ggtgcttga ggggttctta aattatattt aaaaaagtaa 480  
ctttttgtat aaataaaaga aaatgggacg tgwaaaaaaa aaaaaaaaa aaaaactcga 540  
gactagttc 549

<210> 309

<211> 1778

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1704)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1744)

<223> n equals a,t,g, or c

<400> 309

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gccttgtact ggtggttggt ttcatttagt gatcacacac agtggtctac ttggccttgta 180
aaatggtgcc ttggataggg tgagtttggg taagtatgta tgtatgtatg agttatagca 240
aaattaagta gattgaatca agtccatgca aaagcaataa aacagtttta attttttaat 300
tttttaaaaa ttaaaacttt aataaaacag tttttaattt ttgctagggt tcttttaaaa 360
aatgatgtaa cttacatgga agtcttcaca ggactttttt ctttcctgga actattgaaa 420
tgtaatttag gatgatttga tcttccatct caagttgtca acatggctgt gtcattctgg 480
cttacatatg ttttatttaa caaaattcta gtcaagggat aagggcataa tgaagacaag 540
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cccattgtaa aataatattt gcagtcaaat ggtttttctt gctgtaagtc ctggtgtagc 660
tatgttttag gtagtggttc tcatctacct tggagtgcac aagacttacc tagcaggctt 720
gtttaaaaag ttcagattcc tagctttgta cccagggttg gcctcagggt gtatgggctg 780
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aaaaaaaaag gcgggcccgt ctanaagatc caagcttacg tacgcgttgc atgcgacgtc 1740
atanctcttc tatagtgtca ctaaattcaa ttcactgg 1778
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<210> 310

<211> 771

<212> DNA

<213> Homo sapiens

<400> 310

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acagtggttt gagaggctgg gagggttgag gggaagataa acttttaaaa agctcttata 120
tttcatttca atcagttaaa aatacttgct cagtgttaaca attttgcttc tcagcttcca 180
ctctaataat gttgtgccat taagcaattt agctaatactt gacatttctt agattcataa 240
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tgtaggagc atttaatctg tattttacaa gtaggaagc agaggatcag agatgggaaa 300
ggactagccc aaggccaaca ttaacaagcc ctctaacaaa aactttacaa tacatttatg 360
ttgaatggaa ctccaagatc tcacctctcc atccaggaat ggagtccatg taatcaaagt 420
gaacttaaaa ataggacagt ttcaacaagt caggagattc acagcaactg atcaaaggga 480
gtccagtcaa cgtgagcaag cgtgattatg atgaggaagc cccctctgct ttaatccaca 540
caaggaaagt aacctgaagt aacctgatgt taaccaatct gctgtgtcta ctatgctgtt 600
tccttggtcc tgctagtgtc gctttacaaa tgcagaccat tctatcatac ctggcrgggc 660
ttctgtttta tttttaggc tggatgctac ccagttcatg aatcgctaataaaaagccaat 720
tagatcttta taaaaaaaaa aaaaaaaaaat tactgcggcc gacaagggaat 771

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&lt;210&gt; 311

&lt;211&gt; 1419

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (21)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (26)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1005)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 311

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tatggagctg cctgttccga ggttgaaata gactgcctga cgggggatca taagaacatc 120
agaacagaca ttgtcatgga tggtggctgc agtataaatc cagccattga cataggccag 180
attgaaggtg catttattca aggcattgga ctttatacaa tagaggaact gaattattct 240
cccaggga tctgtcacac tcgtggtcca gaccaatata aaatccctgc catctgtgac 300
atgccacgg agttgcacat tgctttgttg cctccttctc aaaactcaaa tactctttat 360
tcatctaagg gtctgggaga gtcgggggtg ttccctgggt gtccgtgtt tttegtatc 420
catgacgcag tgagtgcagc acgacaggag agaggcctgc atggaccctt gacccttaat 480
agtccactga ccccgagaa gattaggatg gcctgtgaag acaagttcac aaaaatgatt 540
ccgagagatg aacctggatc ctacgttctt tggaatgtac ccatctgaat caaatgcaaa 600
cttctggaga aaacagagtg cctcttccca gatggcaatc tgctctatct ctgtgctgga 660
agatgctaga tctgaaagac agagtttcca cagttcagaa atcatccac agtggtgctt 720
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tgt aaccaga tacataaaga gctcttacia ctcaataaaa ggcaagtaat ttaaaaatag 1260  
gcaaaagaat tgctggatgg tatggtagtt ctatttttag tttttaccct aactactctg 1320  
acttgatcat ttaacattct gtgtatgtaa caaaatatca catgcataaa tattatgtat 1380  
caataaaaatt ttttaatggg caaaaaaaaa aaaaaaaaaa 1419

<210> 312

<211> 526

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (525)

<223> n equals a,t,g, or c

<400> 312

gggaagttca aaggggaattt ttttattggt tagcttggtt ttaggttgca gtaaatctct 60  
taggtcatcc agcaggatta ggaagagaag cattgtgaga aacaggtttt gggttttgct 120  
gaaatttgct tgtcagcatt gcatcacttt tccttaactg ttctctaagt actgatgtct 180  
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agccattttc atttatatac ctaattcaat aggtttataa ataaaagggc aaatcctcac 300  
gaataatata gtacagtga aaattgctct ccccttagga actgaggaat agaaaaacaa 360  
tttctcttta cattgtttat agtaggtagc ccttgaaaag aaaatcactt atccctgcc 420  
cccccatggc cctcataaca agttagggaa actgaaattg ctggaaattt aggattctwa 480  
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<210> 313

<211> 2435

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2408)

<223> n equals a,t,g, or c

<400> 313

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cgcgcggtt gcgcaatgcc acccagagga tgtttgaaat tgactatagc cgggactcct 180  
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<210> 314

<211> 2543

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2538)

<223> n equals a,t,g, or c

<400> 314

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tactgctcaa cacatttatt agaacacatc actactaacg aagacttttag ggcagctgga 360  
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tttatctgaa agaagtttct gggtaggag aagtaatgaa tgtatccatt tgtacatggg 2460
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atgtagttgc ccttgtgnag gtt 2543
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<210> 315

<211> 828

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (828)

<223> n equals a,t,g, or c

<400> 315

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taattcgga cgmgtcccg gtggagctgg ctgagtcgcg cgctctgctc caccgcagcg 60
ggctgtgtgt gctgggctg gctcgcgcg aaccgagatg gcagagcagt cggacgagcg 120
cgtgaagtac tacaccctag aggagattca gaagcacaac cacagcaaga gcacctggct 180
```

gatcctgcac cacaaggtgt acgatttgac caaatttctg gaagagcatc ctggtgggga 240  
agaagtttta agggaacaag ctggagggtga cgctactgag aactttgagg atgtcgggca 300  
ctctacagat gccagggaaa tgtccaaaac attcatcatt ggggagctcc atccagatga 360  
cagaccaaag ttaaacaagc ctccggaaac tcttatcact actattgatt ctagtccag 420  
ttggtggacc aactgggtga tccctgccat ctctgcagtg gccgtcgcct tgatgtatcg 480  
cctatacatg gcagaggact gaacacctcc tcagaagtca gcgcaggaag agcctgcttt 540  
ggacacggga gaaaagaagc cattgctaac tacttcaact gacagaaacc ttcacttgaa 600  
aacaatgatt ttaatatatc tctttctttt tcttccgaca ttagaaacaa aacaaaaaga 660  
actgtccttt ctgcgctcaa attttttcgag tgtgcctttt tattcatcta ctttattttg 720  
atgtttcctt aatgtgtaat ttacttatta taagcatgat cttttaaaaa tatatttggc 780  
ttttaaagta aaaaaaaaaa aaaaaagggg gccgcctaa aggggtccn 828

<210> 316

<211> 1608

<212> DNA

<213> Homo sapiens

<400> 316

ccaggctttt gcaaaaagct atttaggtga cactatagaa ggtacgcctg caggtaccgg 60  
tccggaattc ccgggtcgac ccacgcgtcc gaggaggaag ccgactgctg cctggctctgc 120  
aaagaagtcc tttcaagtct ctaggactgg actcttccta agcaagtccg gaagcaccct 180  
cactatgtgg ctctacctgg cggccttcgt gggcctgtac taccttctgc actggtaccg 240  
ggagaggcag gtggtgagcc acctccaaga caagtatgtc tttatcacgg gctgtgactc 300  
gggctttggg aacctgctgg ccagacagct ggatgcacga ggcttgatag tgctggctgc 360  
gtgtctgacg gagaaggggg ccgagcagct gaggggccag acgtctgaca ggctggagac 420  
ggtgaccctg gatgttacca agatggagag catcgctgca gctactcagt ggggtgaagga 480  
gcatgtgggg gacagaggac tctggggact ggtgaacaat gcaggcattc ttacaccaat 540  
taccttatgt ragtggctga aactgagga ctctatgaat atgctcaaag tgaacctcat 600  
tggtgtgac caggtgacct tgagcatgct tccttttggtg aggagagcac ggggaagaat 660  
tgtcaatgtc tccagcattc tgggaagagt tgctttcttt gtaggaggct actgtgtctc 720  
caagtatgga gtggaagcct tttcagatat tctgaggcgt gagattcaac attttgggg 780  
gaaaatcagc atagttgaac ctggctactt cagaacggga atgacaaaca tgacacagtc 840  
cttagagcga atgaagcaaa gttggaaaga agccccaag catattaagg agacctatgg 900  
acagcagtat tttgatgccc tttacaatat catgaaggaa gggctgttga attgtagcac 960  
aaacctgaac ctggctactg actgcatgga acatgctctg acatcggtgc atccgcgaac 1020  
tcgatattca gctggctggg atgctaaatt tttcttcac cctctatctt atttacctac 1080  
atcactggca gactacattt tgactagatc ttggcccaaa ccagcccagg cagtctaaag 1140  
aaaactgggt tggtgcttct tggaaatgaag gcaaaaatct gaaattgtta gtgtctcagt 1200  
aatcctgatt tagaaccag gctttttgta acaatgtgtt ttcttgccca aattcattta 1260  
tctggcatca tcagagtact aacatgttta tatttcagat atccaaagct taccacttta 1320  
gggtgatgaat ctttactatt ttagcccttt tttgatgaga ctatttgtct aaagtgaatc 1380  
atttgttctt gccttattaa acagagtaga tggaaaacaa tttaacctat tttgaagtca 1440  
tttctttatg aatatgaata attgttctat gctttaataa tctattgtga ggaaactact 1500  
aagaaatatg ttggtgtgtt tgtccttact tgaaatgggt ctgtattatg gtacttttaa 1560  
taaataattt atttttcttt ctcttcaaaa aaaaaaaaaa aaaaaaaa 1608

<210> 317

<211> 1057

<212> DNA

<213> Homo sapiens



&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (958)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (966)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1035)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1053)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 317

```
ttaactcaaa ctctaaagtc ttgagtgttt caaagtcagt cgttacctgt ttaaaagcct 60
cagccttttag cttattcctc cttcaatata cgggaccttt ggtaatttg gggcaggaaa 120
actcttaaag taatctctct tgggcagagg ccttattgca ccagaggga aaagtatata 180
cttcatttgc tgttactcca gttatgcctt aaattcattt gcttggtaat cctatcaacg 240
rgcactaact tcttagtata ctttaaacac ttagttgggt aacactgaga ttttggtgtc 300
ctttattttt tgctgagatg gagtcagtca gatgttagtc atagctaaca ccgaatttgt 360
gttgtcattt agacagttac tgattcgatc tgctttatat atgagaacgt atttttaact 420
attccaagaa ggaagaggta gctaaatgta atccccctct cctatcccc cagaaaactg 480
aactgtaagt tctaggtaga ctaattggga gcagacacgg agtttttagat gccttagcca 540
aaccacgag aaacctttca cacagccact catcgtaaga aacgcagatt tttctcttct 600
catgcttgct tctggttccc tgcatttgta gtgacagaac tttcactagc aggatataaa 660
gaaagtaatt atgcttgag tccctcttta ctgggtttga gttagggtgca taacatggaa 720
aggagtgggt ccttcaaagt aatgtgacca ctccgtattg tggagtgact tccctagggc 780
atcctatata tcctaccaca gaaggccaag ggacagagca ccaacttcag tatccaagaa 840
attagatcca caactcttga ttttccacac tgaggactgt cgcgagtaag ttgtaagttt 900
gccgtcttcc ttctggctta gcagggtgctg cagctgtact ctcgactcct gtctgtgnag 960
cgtganyagg gaaaatgagg agtggagtct atttccaaaa aaaaatgtgg atggagtgtt 1020
ttccttaaaag tggcnttcat tggcccaatt ccntttt 1057
```

&lt;210&gt; 318

&lt;211&gt; 1336

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 318

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ccgtccggaa ttcccgggtc gaccacacgcg tccgaaagaa aacttcctga agaacatgcc 60
agatctttact ctgcagaaat cagtctagca ttaaattatc ttcattgagcg agggataatt 120
tatagagatt tgaaactgga caatgtatta ctggactctg aaggccacat taaactcact 180
gactacggca tgtgtaagga aggattacgg ccaggagata caaccagcac tttctgtggt 240
actcctaatt acattgctcc tgaaatttta agaggagaag attatgggtt cagtgttgac 300
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tggtgggctc ttggagtgt catgtttgag atgatggcag gaaggtctcc atttgatatt 360
gttgggagct ccgataaccc tgaccagaac acagaggatt atctcttcca agttattttg 420
gaaaaacaaa ttcgcatacc acgttctctg tctgtaaaag ctgcaagtgt tctgaagagt 480
tttcttaata aggaccctaa ggaacgattg ggttggtcatc ctcaaacagg atttgctgat 540
attcagggac acccgttctt ccgaaatggt gattgggata tgatggagca aaaacagggtg 600
gtacctccct ttaaaccaaa tatttctggg gaatttggtt tggacaactt tgattctcag 660
tttactaatg aacctgtcca gctcactcca gatgacgatg acattgtgag gaagattgat 720
cagtctgaat ttgaagggtt tgagtatatc aatcctcttt tgatgtctgc agaagaatgt 780
gtctgatcct catTTTTTcaa ccatgtattc tactcatggt gccatttaat gcatggataa 840
acttgctgca agcctggata caattaacca ttttatattt gccacctaca aaaaaacacc 900
caatatcttc tcttgtagac tatatgaatc aattattaca tctgttttac tatgaaaaaa 960
aaattaatac tactagcttc cagacaatca tgtcaaaatt tagttgaact ggtttttcag 1020
tttttaaaag gcctacagat gagtaatgaa gttatctttt ttgtttaaaa aaaaaaaaaa 1080
cactgcatta aaaaagtatc tggtgcatta aggcacatag tgggattaca tcataaacct 1140
cccataattt ttgtcattct gtgttaaatc atttcagggt ttaattttga aataaaaagat 1200
taatataaaa tgcaacaact ttttatatta cctattagtt ttggagttct ttatgtttaa 1260
aaattcaggt gtaaaattta ttgccttggg taaataaatt attgatcctt ttttaaggcag 1320
cagttattaa attggt 1336
```

<210> 319

<211> 496

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (433)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (439)

<223> n equals a,t,g, or c

<400> 319

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aattcggcas aggggcgctt ctgaaactca tctttcctga tggagcgttt gaaagtgaga 60
atcgagcatt gatcaatgtc caaatgctga acaattcagg attcgctagg ggaattattg 120
aagagttcca aaataataat gaccttgagt tacaacaaaa atgtattaat gtactaagca 180
catatgctat gattcagggg caaattgatg caaataagga gattgggcag ttcttcatac 240
aaactttaac acagttgaat gttagccctg aaattttgat agaaatgaca aattcgcttt 300
tccaattttac ggggatgcct cttacggcta taatggaacc atwtttghta ggggtgggtt 360
tttatcyatt ctaaargacc cagttgtacc caatttgrgg cmgcmattcc aaatgggtgg 420
ttaaaccacaa atncccganc twaargaagk tgccctgggt gctttactac gttgggtagt 480
ttcatcacta caaatg 496
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<210> 320

<211> 1756

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature  
<222> (1718)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1721)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1733)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1750)  
<223> n equals a,t,g, or c

<400> 320  
gtcgacccac gcgtccgcgg cacgcgtggg ctgaattgcg cgtggtggcc atggcggcca 60  
gcggggctgt ggaaccaggg ccccgggggg ctgccgtcgc cccgtcgccc gccccggccc 120  
cgccgcctgc ccctgacac ctgttccggc ccatcagcgc cgaggacgag gagcagcacc 180  
ccaccgagat cgagtcgcta tgcatagaact gttactgcaa tggcatgacg cgcctcctgc 240  
tcaccaagat tcccttcttc agagaaataa tagtgagctc cttttcctgc gagcactgtg 300  
gctggaacaa caccgagatc cagtcggcag gcaggatcca ggaccaggga gtgcgctaca 360  
ctttgtctgt carggctctg gargacatga acagagaagt ggtgaagact gactctgctg 420  
ccacaaggat tcttgagcta gattttgaaa ttcttgccct tagccagaaa ggagctctga 480  
ccactgttga aggattgatc acccgtgcta tctctggcct ggagcaggac cagcctgcac 540  
gaagggcaaa caaagatgct acagctgaaa gaattgatga gttcattgtc aaactgaagg 600  
agctaaagca agtagcctcc cctttcactc tgatcattga tgatccctca gggaacagtt 660  
ttgtggaaaa cccacatgct cctcagaaaag atgatgccct ggtgatcaca cactacaacc 720  
ggacccgaca gcaggaagag wtgctggggc ttcaagaaga agcaccagca gagaagccag 780  
aagaggaaga tctcagaaat gaagtgtcc mgttcagcac aaagtgccca gaatgcaatg 840  
tccccgstca gaccaacatg aagctaattg tggcttgtt cgcctggaag tagatttcct 900  
taactccgtt ttccagaaat cctcacttt aaggaggtta tcatcatggc taccaactgc 960  
gagaactgtg ggcacgagc caatgaggtg aaatctggag gagcagtaga acccttgggc 1020  
accaggttca cctccacat cacagatgcc tcagatatga ccagagacct cctcaagtct 1080  
gagacttgca gtgtggaaat cccagagcta gaatttgaac tgggaatggc agtcctcggg 1140  
ggcaagttca ccacactgga agggctgctg aaagacatcc gggaaactggg gacaaaaaat 1200  
cctttcacac tgggcgacag ttccaatcct ggacagacgg agagactaca ggagttagc 1260  
cagaagatgg accagatcat cgaaggtaac atgaaggccc actttattat ggatgatcca 1320  
gcaggaaaca gttacttgca gaatgtgtat gcgcctgaag atgatcctga gatgaagggtg 1380  
gagcgttaca agcgcacctt tgacaaaaat gaggagctag ggctcaatga catgaagaca 1440  
gagggctatg aggcaggcct ggctccgcaa cggtagcagt ggggtggctca agggccagcc 1500  
tccagcgtg ctctttctgt aggttattta ttagtattgg atgaaggcga aggctgggag 1560  
tgtctttccc accagccctt gcccatgggt gggaggacat ctggtctgag tcagagatct 1620  
gtgcacactt tctaaacagc ttgtgatgca agtgtgagcc tattgtgtta cttgacctta 1680  
ttttggaagt tttgaattgg cctaggagga aacccccnga nttcagcttg ggncttacca 1740  
ggcttgactn gctcaa 1756

<210> 321  
<211> 588  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (512)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (543)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (567)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (574)  
<223> n equals a,t,g, or c

<400> 321  
gggaggccga ggtgggagga tcaactggagc tggggaggttc aagaccagcc tgggcaacat 60  
agtgaaccg tctccacaaa taatttttaa aaaattagcc aggcattggtg gtgccgcctg 120  
tagtcccagc tactcaggag gcttgggtgg gaggattgcc tgagaccagg aggttgaggc 180  
tgcaagtgagc cgtgatttca ccaccactcc agcctgggtg agaaagcaag accctatatc 240  
aatgaaaaaa aaaaaaaaaa aagaccagct ttgcagccag aagccagagg ataccaggg 300  
acagtagggc tcccaggtgg ctggttctca gcacaccttc catgaatctg cttgctgctg 360  
cttcagtgtg gtggccatcg tgctgtgtga caaaccaggg ctgttcacag yttcctcagc 420  
ccccagaag gggagttggt cagggaagag acattttagt ttcatTTTgc cttgcaattt 480  
tctttcttcc ttgcaagggt cttcgggtggg anttcagttc accaaaacaa aaggcttaaa 540  
ccnggggtttt ttttaaggaga gggtttntta aatncccttt tgcccagac 588

<210> 322  
<211> 738  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (10)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (15)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (17)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (19)  
<223> n equals a,t,g, or c

<400> 322  
gacagtcacn gtacnngnant cccggtcgac ccacgcgtmc gagaagcagg aattcctgaa 60  
ttttatgact atgacgttgc cctgatcaag ctcaagaata agctgaaata tggccagact 120  
atcaggccca ttgtctcccc ctgcaccgag ggaacaactc gagctttgag gcttcctcca 180  
actaccactt gccagcaaca aaaggaagag ctgctccctg cacaggatat caaagctctg 240  
tttgtgtctg aggaggagaa aaagctgact cggaaggagg tctacatcaa gaatggggat 300  
aagaaaaggca gctgtgagag agatgctcaa tatgccccag gctatgacaa agtcaaggac 360  
atctcagagg tggtcacccc tcggttcctt tgtactggag gagtgagtcc ctatgctgac 420  
cccaatactt gcagagggtga ttctggcggc cccttgatag ttcacaagag aagtcgtttc 480  
attcaagttg gtgtaatcag ctggggagta gtggatgtct gcaaaaacca gaagcggcaa 540  
aagcaggtag ctgtcacgcc cgagactttc acatcaacct ctttcaagtg ctgccctggc 600  
tgaaggagaa actccaagat gaggatttgg gttttctata aggggtttcc tgctggacag 660  
gggcgtggga ttgaattaaa acagctgcga caacaaaaaa aaaaaaaaaa aaaaaaaaaa 720  
aaaaaaaaaag gggggggg 738

<210> 323  
<211> 876  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (61)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (759)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (761)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (786)  
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (798)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (857)

<223> n equals a,t,g, or c

<400> 323

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agaccagcag ctggccgctg ggctgtgaac gccagggacc gagcggaagt tcccggcccgg 60
ncgcgacgag tgccgcgggt tctgcaggga agtggctacg cgcgtccctc gggaaaagca 120
ggctttgcaa attggcagcc caagtytcag gggcctgtgc agtgactgat cattaccaac 180
atttcgaagt gagagatgtc acataaagag cgtcatttcg agcttctctt gaaaagttgt 240
aaggtgagct accctgggac tgtattcctg aatggcaatg tgatggcaga gtcctgcagt 300
attaccacct gaggacttgt gcaccagggt tcccaccac ccacttcagg cccttggttc 360
aggggatgtgc ccgtcatgga aataacagggt gctgtggctc tgctggtttt ggctttcctt 420
ctctgtaacc ttccaatata tttctccttc caggtactgt aaaccactta gtaattaatt 480
agttaataaa ttcattctcat cagcactttt aaaataatgt gctaggccac actgtcatgg 540
acccagata tacagcagca aacaaagcag ccatgggtacc ttccctcagg gagcagtcag 600
tccagtggag gagtcagata tgactcacca cacagatcga aaaatctyca caaattatga 660
gaagaatgct gaggggaagaa agaacatagg tggaccgct gctgagtcca ggcttacttg 720
cagagatcta tgctggccag gccctgtgct aggcagcana ngacatggaa taaaatcaaa 780
taaggncact gtgtgcangc accttacggt gtgggaaaag gaacaagccc cattcacagg 840
gttttattaa tttccancct gtgagaaatt gggaac 876
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<210> 324

<211> 1322

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (47)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1309)

<223> n equals a,t,g, or c

<400> 324

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aattcggcac gagcggcacg agggaaattg agcggagagc gacgcgnttg ttgtagctgc 60
cgctgcggcc gccgcggaat aataagccgg gatctaccat acccattgac taactatgga 120
agattatacc aaaatagaga aaattggaga aggtacctat ggagtttgtt ataagggtag 180
acacaaaact acagggtcaag tggtagccat gaaaaaaatc agactagaaa gtgaagagga 240
aggggttcct agtactgcaa ttcgggaaat ttctctatta aaggaaacttc gtcattccaa 300
tatagtcagt cttcaggatg tgcttatgca ggattccagg ttatatctca tctttgagtt 360
tctttccatg gatctgaaga aatacttgga ttctatccct cctggtcagt acatggattc 420
ttcacttggt aagagttatt tataccaaat cctacagggg attgtgtttt gtcactctag 480
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aagagttctt cacagagact taaaacctca aaatctcttg attgatgaca aaggaacaat 540  
taaactggct gattttggcc ttgcagagct tttggaatac ctatcagagt atatacacat 600  
gaggtagtaa cactctggta cagatctcca gaagtattgc tggggtcagc tcgttactca 660  
actccagttg acatttggag tataggcacc atatttgctg aactagcaac taagaaacca 720  
cttttccatg gggattcaga aattgatcaa ctcttcagga ttttcagagc tttgggcact 780  
cccaataatg aagtgtggcc agaagtggaa tctttacagg actataagaa tacatttccc 840  
aaatggaaac caggaagcct agcatcccat gtcaaaaact tggatgaaaa tggcttggat 900  
ttgctctcga aaatgttaat ctatgatcca gccaaacgaa tttctggcaa aatggcactg 960  
aatcatccat attttaatga tttggacaat cagattaaga agatgtagct ttctgacaaa 1020  
aagtttccat atgttatgtc aacagatagt tgtgttttta ttgttaactc ttgtctattt 1080  
ttgtcttata tatatttctt tgttatcaaa cttcagctgt acttcgtctt ctaatttcaa 1140  
aaatataact taaaaatgta aatattctat atgaatttaa atataattct gtaaatgtgt 1200  
gtagggtctca ctgtaacaac tatttgttac tataataaaa ctataatatt gatgtcagga 1260  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaggg cggccgctng cgatctagaa 1320  
ct 1322

<210> 325

<211> 342

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (64)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (71)

<223> n equals a,t,g, or c

<400> 325

aattcggcag agctaaaaca gattcaaacc ttgaagcaga tgaacgagca actgcaggct 60  
gagnacaggg ncctgaccgc agtggtggcc agactctcgg agtccatcga gtcctcggac 120  
accaggagc tctagtcttk gccctactc tccaactcac tccctcctc cactactcca 180  
ggcaggttca gtcttcttgt tagtcccaga agctctgtgc tcatcccctc catccgagcc 240  
tccatatgca ggttcctgca aagcttggtt atctgcagat ggaagcagcc aggactgaga 300  
tcatagaatg gggacatacc agcctaggtc aaggagggca gt 342

<210> 326

<211> 3690

<212> DNA

<213> Homo sapiens

<400> 326

ctgggcgact cctcctcctc ctcttctcgc cattgcagtt ggaccagca gcccggcgcg 60  
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tgcggtcgaa gaaggggacg ccgacaagag ttgaagtatt gataacacca aggaactcta 180  
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<210> 327

<211> 719

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (446)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (701)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (709)

<223> n equals a,t,g, or c

<400> 327

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gcaccacgcc ggggggcacg ctatacgcca ctacccccgg aggcaccagg atcatctacg 180  
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caccacctct tccctggggc tccaanagcc agctggcctc atctaactctg gaaggagtg 480  
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aacttgccaa gcccttaact ctacttcctc ttcagtctgt ggtactcctc ctaaccctaa 600  
accctctatg ctcaggggct ggaactgggg aatggagtaa gtcaccttct gactgcttag 660  
taaacattca aagaaaaaaaa aaaaaaaaaa aaaaaaacct ngggggggnc cccgtaccc 719

<210> 328

<211> 989

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (176)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (943)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (968)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (982)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (984)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (986)  
<223> n equals a,t,g, or c

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tcaccgcagc ctgcgccacc agcacgtcgt aggattccac ggcttttttcg aggacaacga 420  
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cggggagagg aagaagaccc tgtgtgggac tcctaattac atagctcccg aggtgtgtgag 720  
caagaaaggg cacagtttcg aggtggatgt gtggtccatt ggggtgtatca tgtatacctt 780  
gttagtgggc aaaccacctt ttgagacttc ttgcctaaaa gagacctacc tccggatcaa 840  
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tctttcgncc caaaaaaaaa angngnatt 989

<210> 329  
<211> 434  
<212> DNA  
<213> Homo sapiens

<400> 329  
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atgcccctgc atactattat tccgttggtta caagagctta caaagagggtt acaaggacat 180
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agcagagtca aaactttttca gaaactttca caccttcatg gaaagcttat tcttctaatt 360
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ttggtgtatg aagt 434
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<210> 330

<211> 696

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (643)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (657)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (685)

<223> n equals a,t,g, or c

<400> 330

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tggacctgtg gttcatacct tgtcaccacc cgggaagctg aaggccactt yctcccagat 480
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ggcctgcaag ccgcccaggs ctycccagca gcctcctaca gagcaggaag agggcgccct 600
gttgaaccct gagtgtttgc aggccagca gaccctgctg ttnccaagcg caccctngct 660
ttcgaacatt aacttcctta acttngggac agtagg 696
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<210> 331

<211> 541

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (181)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (532)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (541)

<223> n equals a,t,g, or c

<400> 331

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gccacgccct gcggccamct gttctgctgg gagtgcacat mcgctggtg cagcagcaag 360
gcggagtgtc cctcctgccc gggagaaagt tccctcccca gaaagctcat ctaccttcgg 420
cactaccgct tgaaccggcg cccgggttgg gccttggaac caaattgaac tctacgggaa 480
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n 541
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<210> 332

<211> 305

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (54)

<223> n equals a,t,g, or c

<400> 332

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ctgacaagcg ctggggacag tggcgtcctt gtcttgctt tgctgctccc gccccgtct 120
tccctggctg ggctggcgga ggccttgctg atgaacctga ctgagggtcc cctggcgatg 180
gcagaaatgg accctacaca gggccgtgtg gtctttgagg acgtggccat atatttctcc 240
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aattt 305
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<210> 333

<211> 445

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (409)  
<223> n equals a,t,g, or c

<400> 333  
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tggtgaatag agccccctsc aaggttgctc aggataaatc atttattaaa taggtctgct 180  
tatcaggagg ggcgtgaagg ctcccaaaag gaaatgctgg cacctgggcc cagaagccag 240  
ggccttytaa ctccctgggg tgatttcttc agtgaagttg caccctacaa aggggaatatg 300  
gccmaagcgg gcaattcaac tgggaaggctg rtatcaggcg rttagacagc catggcattt 360  
ctggcggtta gtctgggaat gggttggtag aggaggtggg acttatatng agggacttac 420  
cagttccccg ttgggatttt ggatg 445

<210> 334  
<211> 317  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (100)  
<223> n equals a,t,g, or c

<400> 334  
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tctgaaggat ttcagtgttt atcataacat ttgacataca gttggcactt ggtaggtact 180  
gaatcaatga ataggagtta ttggttgctt attcagaggc ttgtgggagt tgtcatcccc 240  
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<210> 335  
<211> 1524  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1440)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1441)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1511)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1523)  
<223> n equals a,t,g, or c

<400> 335  
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actggaaatt ctcttgctag ttaaaaaaca ttccaagatt aatgacactg agttcttcta 180  
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cttaagctaa ntgtttactg ggna 1524

<210> 336  
<211> 306  
<212> DNA  
<213> Homo sapiens

<400> 336  
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tccttatcag atattccttg acccccctat gttaagtgtc ttagccactc attgttaagc 180  
caactgctaa aatcttagaa aaatattttca gccttctcct accccatccc ccacccccac 240  
aagcttctag cttcttctac ctacagcaaa tggttaaaact ggtcagaagt tatattattt 300  
actctg 306

<210> 337  
<211> 291  
<212> DNA  
<213> Homo sapiens

<400> 337  
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acctaattga cctggggaaa gcagaatgcc taactccagc ctgtggtatt ttgttatggc 180  
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<210> 338  
<211> 1264  
<212> DNA  
<213> Homo sapiens

<400> 338  
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<210> 340

<211> 2639

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (52)

<223> n equals a,t,g, or c

<220>

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<222> (1651)

<223> n equals a,t,g, or c

<400> 340

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<210> 341

<211> 1824

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1807)

<223> n equals a,t,g, or c

<400> 341

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<210> 342

<211> 4531

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (30)

<223> n equals a,t,g, or c

<400> 342

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<211> 584

<212> DNA

<213> Homo sapiens

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<210> 344

<211> 778

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<400> 344

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<210> 345

<211> 3740

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (223)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 345

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<211> 446

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (376)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (408)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (427)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (442)

<223> n equals a,t,g, or c

<400> 346

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gcagacggag ccgcggcgca ggggcagcgg gacctcagcc accgctggag agagcggatg 300
ttctgaacgt ttcccctgga cgctgcctgc cacaccagtg gaagctgagt tcatgctgta 360

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<210> 347

<211> 782

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<220>

<221> misc feature

<222> (772)

<223> n equals a,t,g, or c

<400> 347

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ta 782

<210> 348

<211> 439

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (145)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (175)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (369)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (420)

<223> n equals a,t,g, or c

<400> 348

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<210> 349

<211> 2356

<212> DNA

<213> Homo sapiens

<400> 349

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<211> 1219

<212> DNA

<213> Homo sapiens

<400> 350

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<210> 351

<211> 408

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (392)

<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (397)  
<223> n equals a,t,g, or c

<220>  
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<222> (405)  
<223> n equals a,t,g, or c

<400> 351  
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<210> 352  
<211> 1283  
<212> DNA  
<213> Homo sapiens

<400> 352  
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<210> 353  
<211> 3229

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 353

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<210> 354

<211> 506

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (470)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (505)

<223> n equals a,t,g, or c

<400> 354

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gcgcgataac atccagggca tactaagcc agctatccgg cgcttgctc gtccggcg 180  
tgtcaagcga atttctggcc ttatctatga ggagactcgy ggtgttctga aggtgttct 240  
ggagaacgtg attcgtgacg ctgtcaytta cacagagcac gccaaacgca agaccgtgac 300  
agcaatggat gtggctctacg cgctgaagcg acagggacgc actctttacg gcttcgggtg 360  
ctaaggctcc tgcttgctgc actcttattt tcattttcaa mcaaargccc ttttcagggc 420  
sgccamtttt ttcataaaaag agcaagacat cttgktatcc tgctttggtn caaaattttg 480  
ctgagaagaa gtactgggca catgng 506

<210> 355

<211> 742

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (80)

<223> n equals a,t,g, or c

<400> 355

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gggaatggcc gtgtctaccc ccacccccag gacttggttg cagccctgcc cctggcgctg 180  
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gakgrgtgtg agggatcaga ccaggaggca agtgaagccc aacgccacgc tggagaaaca 300  
cttcctcagc gaagggcaca ggccaaggag cccagctgt ctctcctggc cgcccagtg 360

ggcctcacgc tgcagcagac ccagcgatgg ttccggagac gccggaacca ggatcgaccc 420  
cagctgacca agaagtcttg tgaggccagc tggaggtttc tcttctacct gtcctccttc 480  
gtgggcggcc tctcggtcct gtaccacgag tcatggctgt gggcaccagt aatgtgctgg 540  
gacaggtacc caaaccagac tctgaagcca tccctgtamt ggtggtamct cttkkgagct 600  
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<210> 356

<211> 1695

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (24)

<223> n equals a,t,g, or c

<400> 356

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cctgcggcag cattggcctt tgcagcggcg gcagcagcac caggctctgc agcggcaacc 180  
cccagcggct taagccatgg cgcttctcac ggcattcagc agcagcgttg ctgtaaccga 240  
caaagacacc ttcgaattaa gcacattcct cgattccagc aaagcaccgc aacatgaccg 300  
aaatgagctt cctgagcagc gaggtgttgg tgggggactt gatgtcccc ttcgaccagt 360  
cgggttttggg ggctgaagaa agcctaggtc tcttagatga ttacctggag gtggccaagc 420  
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ctgtggatgg gttggtcagt cctccaaca acagcaagga ggatgccttc tccgggacag 540  
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gcactgaggg atcatggcaa cgtaagcagt gtagtctggc ttcctatctc cttcagtgat 1560  
atccacttca ctgcccagct ctaaaactaaa ggaatgatct ggagtggagg acaggacccc 1620  
tggggaaaagg ggaaagaagg aaggaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1680  
aaaaaaaaaa aaaaaa 1695

<210> 357

<211> 928

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (928)

<223> n equals a,t,g, or c

<400> 357

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gacccgcccc ccaccagcta cgcgccgtcc gacgtgccct cgggggtcgc gctgttcctc 120
accatccctt tcgccttctt cctgcccagag ctgatatttg gggtcttggt ctggaccatg 180
gtagccgcca cccacatagt ataccctctg ctgcaaggat gggatgatgta tgtctcgctc 240
acctcgtttc tcatctcctt gatgttcctg ttgtcttact tgtttggatt ttacaaaaga 300
tttgaatcct ggagagttct ggacagcctg taccacggga ccactggcat cctgtacatg 360
agcgtgcgcg tcctacaagt acatgccacg attgtttctg agaaactgct ggacccaaga 420
atttactaca ttaattcggc agcctcgctt tcgccttca tcgccacgct gctctacatt 480
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tctttgaaag ctccaattat tggccccaa aagcagcttc caacgtttgc catctggatg 600
acaaacggaa gatccactaa aacgtccacg ggattaacag aacgtccttg cagactgagc 660
gatgacacca cactttgttt ggacatttaa attcactctg ctgaatagga ggaagctttt 720
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rtccgatctt tttttttgtt ttgttttn 928
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<210> 358

<211> 1374

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1374)

<223> n equals a,t,g, or c

<400> 358

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aggaacgaga tggcggttct ctggaggctg agtgccgttt gcggtgccct aggaggccga 120
gctctgttgc ttcgaactcc agtggtcaga cctgctcata tctcagcatt tcttcaggac 180
cgacctatcc cagaatggtg tggagtgcag cacatacact tgtcaccgag ccaccattct 240
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gccctcactc ttcattggtc ctggggcctt ggacaagttg ttactgacta tgttcatggg 420
gatgccttgc agaaagctgc caaggcaggg cttttggcac tttcagcttt aacctttgct 480
gggctttgct atttcaacta tcacgatgtg ggcattctgca aagctgttgc catgctgtgg 540
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aagctctgac ctttttgact tcatactttg aagaattgat gtatgcctct ttgcctctgc 600  
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gccttcttct cttatacaca agattatttt cagaatttaa tctttgagga aaagggttga 720  
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ctcccagctt cttataagac tcacagtata actaaacatg atatatcagc ttttgccttt 840  
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ccatatttgc cttgggaata atggacaaaag ggaaatactc ttaattcatg aataaaaaact 960  
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ccattttaagg gcaagtttcc ccgtagatgt atcaaaatac taccaactgt aaattgagat 1200  
ttaattccca aatgtattct acttgttcta aaacaatctg tccacaaata taaaactata 1260  
agtaataaat tgttattttc gcacaatggg aatctcctaat gtgaaaatgt attctatgaa 1320  
aataattttt ttaataaaaa tgttatataa taaaaaaan aaaaaaagaa aaan 1374

<210> 359

<211> 4152

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (65)

<223> n equals a,t,g, or c

<400> 359

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caggntgtgt tttccaccca gccgcagaga gccaggatgg acgttcctcg gacggacggg 120  
tttctgtctt gggaatgttc ctgggctgtg agatccactc ttctgggcag gtggttagca 180  
cctaacgttt ttccctcact tcccccaaaa ttcttaagtc ctttgggtcca tttcactgct 240  
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cgggctactg cctcataact atgacctga caagcgcagc ttgagagtcc ccaaacgccc 480  
gatcatcaac acacccgtgg tgagcatcag cgtccatgat gatgaggagc ttctgccccg 540  
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gcccatctgt gtcttctgga accattcaat cctggtcagt ggcacaggtg gctggtcggc 660  
cagaggetgt gaagtcgtct tccgcaatga gagccacgtc agctgccagt kcaaccacat 720  
gacgagcttc gctgtgetca tggacgtttc tcggcgggag aatggggaga tcctgccact 780  
gaagacactg acatacgtgg ctctaggtgt crcttggct gcccttctgc tcaccttctt 840  
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&lt;210&gt; 360

&lt;211&gt; 1156

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



<220>

<221> misc feature

<222> (49)

<223> n equals a,t,g, or c

<400> 360

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ggaggactcc ctgcccagacc gggacctggc actcgccgat gagccagcag gaacgccgac 180
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aaaaaaaaaa aaaaaa 1156
```

<210> 361

<211> 376

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (371)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (374)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (376)

<223> n equals a,t,g, or c

&lt;400&gt; 361

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waaaaytaga aagaagcttt ctgagaaact gctttgtgat rtgtgcattc atctcacaga 120
ggtaaattctt tcttttgatt cagcagtttg gaaacctggc taacatggtg aacccggtgt 180
ctactgaaaa tacaaaaaat tagccagggtg tgggtggcaca atgctgtaat cccagctact 240
caggagggtg aggcaggaga atcgcttgaa cccgggaggt gggagggttac agtgagccaa 300
gtttgtgcca ctgcattcca gcctgggctt atagagtggg acttccgtct tcaaaaaaaaa 360
aaaaaaaaaa nctngn 376
```

&lt;210&gt; 362

&lt;211&gt; 519

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (517)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 362

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ccctaagcca tttttgaaga gaggacctgc cctagcttta tgacttaaga ccatgactat 60
gcatcttaag ttgccctct gactgggcag ctttctcctg aacacagtga ggaatgctaa 120
gttacatggt ccagtaamtg agtggatacc ctgagcccc gcataccact ggctgctatg 180
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aatgttcttt cttccacaga aatctggcct agcagtctat tcttaaattg ctctttgtgt 360
gtaagacaca tctgtttgat accccactct gccctgactt ttaggcaaat ccgttaggac 420
aggaaccact attttctttc cttccctttg aatcatcttt taaagcagca gaggcaatgt 480
tkggcagagg tccacattgg gaaagttagt gcatacanga 519
```

&lt;210&gt; 363

&lt;211&gt; 1385

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1320)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1340)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1350)

&lt;223&gt; n equals a,t,g, or c

<220>

<221> misc feature

<222> (1360)

<223> n equals a,t,g, or c

<400> 363

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gcctggcctg ggccggaccc ggtcagggtt ctcaagctgt cgtccctatg gggctgtgtt 120
ttccttgtec cggggagtcg gcgcctccca cggcggacct ggaagagaaa agagcaaagc 180
ttgcagaggg tgcagagaga agacaaaaag aggctgcata tcggggaatt ttagatgttc 240
aatctgtgca agaaaagaga aagaaaaagg aaaaaataga aaaacaaatt gctacatccg 300
ggccccacc agaagggtgga cttagggtgga cagtttcata aagcataaca tgagtagaag 360
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gtttc 1385
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<210> 364

<211> 977

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (25)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (962)

<223> n equals a,t,g, or c

&lt;400&gt; 364

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ttgggggaac actgtttttt ctgcatcatc ctgcatttgc tccccaagca atgtagaggt 180
gtttaaaggg ccctctgctg gctgagtggc aatactacaa caaacttcaa ggcaagtttg 240
gctgaaaaca gttgacaaca aaggggcccc atacacttat ccctcaaatt ttaagtata 300
tgaaataactt gtcattgtctt tggccaaatc agaagatatt catcctgctt caagtcagct 360
tcagaaatgt tttaaaaggg acttttagctc tggaaactcaa aatcaattta ttaagagcca 420
tattctttta aaaaaaaaaa gctggataat attmtctgta atatttccagt cttttacaag 480
ccaaatacat gtgtcaatgt ttctagtatt tcaaagaagc aattatgtaa agttgttcaa 540
tgtgacataa tagtattata attgggttaag tagcttaatg attaggcaaa ctagatgaaa 600
agattagggg cttccacact gcatagatta cacgcacata gccacgcata cacacacaga 660
cacacagatg tgggggtacac tgaacttcaa agcccaaagc aatagaaaca cattttctgg 720
ctagcagaaa aaaacaaaac aaaactgttg tttctctttc ttgctttgag agtgtacagt 780
aaaagggtt ttttcgaatt atttttatat ttttttagct ttaattgtgc tgcgttcatt 840
gaaacagagc tgctctgctt ttctgtcaga gatggcaagg gctttttcag catctcgttt 900
atgtgtggaa tttaaaaga ataaagtttt attccattct gtgtgaatgg tttgagcagt 960
nggaaaagga caaaaaa 977

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&lt;210&gt; 365

&lt;211&gt; 964

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 365

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gttcggcaca gaaagggaga tgggtagcat cattttgatt aacatttggg gcctgatagg 60
ggaaatggtg aagcaatgga aaagaacaga caactaatga tttgcttcta tgtccagaat 120
attttacctt taaaaaatg tcattggcac cataaataag gactgtgaga gactgtttta 180
aagctgtgaa agtctgaaac ctataagcca aggtgttccc tgcctaaact tattgctgtt 240
cccacaaagg actaagcctg ttcataagtt accaaagttg ccattttgga gatggaaatt 300
gacgaggagg gaaggtcttt tattggagag tatacagtag aagcagatca ttctgcctta 360
gaggtgctaa ttcccgaat tagaagaccc tttcttttcc agtaacgaag ttataaatat 420
cagcttgctt atccaagcca ctggctgagg tgtaggaag aggaagaggg tggtagagga 480
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catgtgttag atttctgtgt aaactttgtt taaatgtaa cttcatacta cattgtcagt 900
ttttgtctta ataaaactat agatttataa aaaaaaaaaa aaaaaccgcg gggggggggc 960
ccgg 964

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&lt;210&gt; 366

&lt;211&gt; 1297

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 366

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gtggcttacg cctgtaatcc cagcactttg ggaggccgag gcaggcggat cacgaggtca 60
ggagtccgag accagcctga ccaacatggc gaaaccccg ctctactaaa aatacaaaaa 120

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ttagctgggc gttatggcgg ggcctgttaa tcccagctac ttgggaggct gaggcagaag 180  
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cacctactta aggatccact tttagggtc acccacattt gtttcttagat ttacccctgc 360  
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ctcctgcaaa ttagtgagaca gactccctgg aacatgtttg gggcttccac ctagggccac 480  
ctagtgggtat ctctgggtct ttacttggtc agatgtttat tctacattgt tcccaggaa 540  
cagagtatga gctcattgat gcagaccgat tctaattgcc aggccctaata ttgcagacta 600  
actctcataa taaacagagg cccatagtgt tttatgaact gcttatccct taaaggagca 660  
caagaacccc tccctgccct ccttgggcac cctgcctcca ggagatggag gcacgtgata 720  
agacaaaaga ctgcaccaac tcaccctgac acagttacat agtcactgag agtggggaag 780  
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<210> 367

<211> 785

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (704)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (746)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (753)

<223> n equals a,t,g, or c

<400> 367

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gagctttttc agaagcgcga tcccaggaca cgtcgggaag caagcatccc cagagctgct 180  
tggaagagg accaaagacg tctaaaaagt catttggaat tatctctaaa tatttggtac 240  
catgtataag ctgctaaaga gaaattgggc ccaacaaaac taattgaata attgaggcag 300  
atttgtgtgt atcatcaaat tctatccaga agttgaagaa tctgaattta aagattgtgt 360  
gcatttaata agaggatgac ctttcagttt aatttcacta tagaagacca tctggaaaat 420  
gaattaacac ccattagaga tggagctttg accctggatt cctcaaaaga gctgtcagtc 480  
tcagaaagtc aaaaaggaga agagagggac agaaaatgtt ctgcagaaca atttgacttg 540

cctcaggatc acttgtggga acataagtca atggaaaatg cagctccctc tcaagacaca 600  
gacagtccac tcagtgcagc cagcagttca aggaacttgg gagccacatg ggaaaacagc 660  
cctccttgag agctggccaa aggrgcmgtgc tatgccttaa aggnntttaa gaagrtgttt 720  
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rgtta 785

<210> 368

<211> 920

<212> DNA

<213> Homo sapiens

<400> 368

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aaggggtgata ttataaaaac aaggggtggt ggacaatctg ttcagtttac tgatattgag 180  
actttaaagc aagaatcacc aaatggtgtt ctgtggctgt ggagatgaga gcaggatccc 240  
agctgggacc tggatatcag catcacgcac aaccaagcg caaaaagcca tgaactgaca 300  
gtcccagtac tgaaagaaca ttttcatttg tgtggatgat ttctcgaaag ccatgccaga 360  
agcagtcctc caggtcacat tgtagaactc cagctttgtt gaaaatcacg gacctcagct 420  
acatcataca ctgaccaga gcaaagcttt ccctatgggt ccaaagacaa ctagtattca 480  
acaaaccttg tatagtgtat gttttgccat atttaatat aatagcagag gaagactcct 540  
tttttcatca ctgtatgaat tttttataat gtttttttaa aatatatttc atgtatactt 600  
ataaactaat tcacacaagt gtttgtctta gatgattaag gaagactata tctagatcat 660  
gtctgatttt ttattgtgac ttctccagcc ctggtctgaa tttcttaagg ttttataaac 720  
aaatgctgct atttattagc tgcaagaatg cactttagaa ctatttgaca attcagactt 780  
tcaaaaataaa gatgtaaatg actggccaat aataaccatt ttaggaaggt gttttgaatt 840  
ctgtatgtat atattcactt tctgacattt agatatgcca aaagaattaa aatcaaaagc 900  
actaagaaat amaaaaaaaaa 920

<210> 369

<211> 834

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (533)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (831)

<223> n equals a,t,g, or c

<400> 369

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ggtaacttga aaaatggaca aggattgtga aatgaaacgc accacactgg acagcccttt 120  
ggggaagctg gagctgtctg gttgtgagca gggctctgcac gaaataaagc tcctgggcaa 180  
ggggacgtct gcagctgatg ccgtggaggt cccagccccc gctgcggttc tcggaggtcc 240  
ggagcccctg atgcagtgc cagcctggct gaatgcctat ttccaccagc ccgaggctat 300  
cgaagagttc cccgtgccgg ctcttcacca tcccgttttc cagcaagagt cgttcaccag 360

acagggtgtta tgggaagctgc tgaaggttgt gaaattcggga gaagtgattt cttaccagca 420  
attagcagcc ctggcaggca accccaaaagc cgcgcgagca gtgggaggag caatgagagg 480  
caatcctgtc cccatcctca tcccggtgcc cagagtggc tgcagcagcg ganccgtggg 540  
caactactcc ggaggactgg ccgtgaagga atggcttctg gcccatgaag gccaccggtt 600  
ggggaagcca ggcttgaggag ggagctcagg tctggcaggg gcctggctca agggagcggg 660  
agctacctcg ggctccccsc ctgctggccg aaactgagta tgtgcagtag gatggatgtt 720  
tgagcgacac acacgtgtaa cactgcatcg gatgcggggc gtggaggcac cgctgtatta 780  
aaggaagtgg cagtgtcctg ggaaaaaaaa aaaaaaaaaa aagaaaaaaaa naaa 834

<210> 370

<211> 947

<212> DNA

<213> Homo sapiens

<400> 370

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aaaagaaaaa gctccctcag attgtgttac taggagtctc ttttgtgaca ttactgasc 180  
tttctcccca atcttacctt cctattggct actttttaaa taaaaataaa cattttaggc 240  
taatatgaca aaaatgagat aaaatcttaa aaacattgta ctagtgtaca gttactaaaa 300  
tgtgcttact acaaaacagt aaaatatttc actctgtaaa tcatcactaa gtagttattc 360  
tgtcctgttg attatgagcc tccaaaaatg tttaatgctt gamggatggt ttgggaggca 420  
gggaatcctt wtcttaaaac ractktaatg aggcatatgt tacatatcat aaaacaccca 480  
tktcaagtgt acatytcagt gatttttagta acttccctca gtggtgtagc tgtarctatt 540  
actcagttyt agawcatktt tatcccccca ataagatctt catgctcwkt tacagttaac 600  
ctgtgcttac cccagcaaca ctaatctact tctctataaa ttgcctttct ggcagtcaat 660  
catggaatca tcatagtggc cgtgggtctg cttgtactag aatgtttgag gttgtcagca 720  
gtacgtctgg actgtcgata tgcggggaac ggtgtgtggc cattgctgcg ggcttacatg 780  
gtcatctgtc tacgactcgc gtgctatgga cgtgggtcaaa ccatcgggag cgtctccgcg 840  
tcgagttttg cttgtgtagg ggcactggtg cagtttggtg ggagaggccg gtccccgggg 900  
aaactctgga gactttgcga gagccgctct agcgccccct ggtggct 947

<210> 371

<211> 2340

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (316)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2301)

<223> n equals a,t,g, or c

<400> 371

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taccggagct asgataasgt agcatgartg acacctgaga ttagaggctg gggctcactg 120  
caggctgtgg agaggtcatg ctggtccaca ggaacacttg gcagtgtctt cgtagacccc 180

tcggtgatgt ggaatggaca ggtgcctcgc aagagagcaa gcacgttcat aacaaaacag 240  
caacacaaag acatgttaag catgtttatt ttttgcctg tttttgtttt tttacttgag 300  
ctgtgggtcac agctgnccag gtacctaaagc aagtcagttg ggtacagcag gacacgccac 360  
cattccagggt tagctgggtac cgccagaaac aggagtgagg cttgtcctgt tgcaggcaca 420  
ctgcagtggt tttcctgcag ctctccaaca aacgcctgag tcacaggcca gagctgcctt 480  
gggtatgttg taagtccaaa acttcttctc tgggctacct atcttccttc atgaagcagg 540  
tgctcaggac ccggaagaat catctacctc ccagctttgt gagacagaac caagtaaaag 600  
gaaacatgct agaaaacgtg cctagagaag acacttcaac ctttgcctta tccaaccctt 660  
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cctggctaga gctgcaaaaa agggacacac cccacttcgg taaaagaaaa tagggaaagg 2220  
ccataaacia agacagactt gtagttttatt ttgtattttt tttaaataaa tacactttac 2280  
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<210> 372

<211> 1575

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (58)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1492)

<223> n equals a,t,g, or c



<220>  
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<222> (1548)  
<223> n equals a,t,g, or c

<220>  
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<222> (1556)  
<223> n equals a,t,g, or c

<220>  
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<222> (1559)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1565)  
<223> n equals a,t,g, or c

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tggagcggcc ccaggacagg gacacgcccg tgcagaataa gcggaggcgg aggtgacccc 180  
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ccaanaaggg gaagg 1575

<210> 373

<211> 1878  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1717)  
<223> n equals a,t,g, or c

<220>  
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<222> (1764)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (1773)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1810)  
<223> n equals a,t,g, or c

<400> 373  
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<210> 374

<211> 846

<212> DNA

<213> Homo sapiens

<220>

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<222> (703)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (747)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (786)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (797)

<223> n equals a,t,g, or c

<400> 374

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<211> 657  
<212> DNA  
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<220>  
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<222> (14)  
<223> n equals a,t,g, or c

<220>  
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<222> (618)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<210> 376  
<211> 695  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (39)  
<223> n equals a,t,g, or c

<220>  
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<222> (56)  
<223> n equals a,t,g, or c

<220>  
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<222> (103)  
<223> n equals a,t,g, or c

<220>  
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<222> (647)  
<223> n equals a,t,g, or c

<220>  
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<222> (653)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (662)  
<223> n equals a,t,g, or c

<220>  
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<222> (680)  
<223> n equals a,t,g, or c

<400> 376  
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caagktaatg tcatcagtta aggcaaggac tggccatttw crcttctttt gtggtggaat 360  
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cnccatggac agtaatgtan ggatttaaag gcagg 695

<210> 377  
<211> 3610  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature

&lt;222&gt; (29)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 377

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<210> 378

<211> 223

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (68)

<223> n equals a,t,g, or c

<400> 378

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<210> 379

<211> 809

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (171)

<223> n equals a,t,g, or c

<400> 379

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<210> 380

<211> 2550

<212> DNA

<213> Homo sapiens

<400> 380

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<210> 381  
<211> 1268  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1259)  
<223> n equals a,t,g, or c

<220>  
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ttggggaaag aggataatca gtgagcactg ttctgtcag agctcctgat ctacccacc 780  
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atggctggag gtgggagaga acctgacttc tctttccctc tccctcctcc aacattactg 900  
gaactctatc ctgttaggat cttctgagct tgtttccctg ctgggtggga cagaggacaa 960  
aggagaaggg aggggtctaga agaggcagcc cttctttgtc ctctggggta aatgagcttg 1020  
acctagagta aatggagaga ccaaaagcct ctgattttta atttccataa aatgttagaa 1080  
gtatatatat acatatatat atttctttta atttttgagt ctttgatatg tctaaaaatc 1140  
cattccctct gccctgaagc ctgagtgaga cacatgaaga aaactgtgtt tcattttaaag 1200  
atgttaatta aatgattgaa acttgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260  
aaaaaaaaa 1268

<210> 382  
<211> 854  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature

<222> (794)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (807)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (817)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (835)

<223> n equals a,t,g, or c

<400> 382

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gcggacgcgt ggcggacgcg tgggtgctta tgaacatcca ggctccagcc ttttcctga 60
gggtcctaata gactatgtct tcagtcattct tccactccac tctcagcaac aagtgcgagc 120
ccctatcccc atggtgcccg ttggtgggat ccagatgggt cactccatgc cgccagccct 180
ttccagttta catccttcac ccacattgcc cctgccaatg gagggctttg aggagaagaa 240
aggcgcgtca ggggagtcct tctccaagga cccctatgtg ctttctaagc agcatgagaa 300
gcgaggtcct cagcgtttgc agtcattctg tccrctagc actccctcct ctctcggct 360
gttgatgaaa cagagcactt cggaagacag cctaaacgca acagagcggg aacaggagga 420
aaatatacag acttgtagaa aagccattgc ctctctccgg attgccacgg aagaggcagc 480
tctgctcggg ccagatcagc cagcgcgggt gcaggagccc caccagaacc ccctgggaag 540
tgcacatgtt agcattagac actttagtag acctgagcca ggtagccct gtacctcagc 600
caccaccctt gacttgcatg atggtgaaaa ggacaatttt ggtacatcac agactccatt 660
agctcactcc acgttttaca gcaagagttg tgtgggtgac aagcagttgg rcttttcaca 720
gcagcaaggg aattttcttt caagcacagr gggaaagcaa agatccttcc ttcaggaaaa 780
gagtycagct tacnttggtc ttttggttgg ctggggngat tttccttttc ccacnttttt 840
cccctttttt tttg                                     854
```

<210> 383

<211> 1091

<212> DNA

<213> Homo sapiens

<400> 383

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gttttcagga ttgcattgtc tatgcaaaga ataaggcctg gcacatcata agcactcaaa 60
gtattatgtt tctttttccc tattctaact cagcattatt ggtgcttctt atatgacttc 120
cctctcattt tatcagatgt gatgactgaa gccaccaca aatatgacca ctctgaggct 180
acaggatcct caagctggga tatccaaaat tctttcagaa gagagaagct ggaacaaaaa 240
tccccagatt cgaagacact acaggaagat tcacctggag tgagacaaag ggtctatgag 300
tgccaggagt gtggaaaatc cttccggcaa aaaggtagtc taacgttaca tgagagaatc 360
cacactggtc aaaagccttt tgagtgcacc cactgtggaa aaagcttcag ggccaaaggc 420
aatcttggtt cacatcaacg gatacacacg ggagagaagc cttatcagtg caaggagtgt 480
gggaaaagct tcagtcaacg aggtagtctc gctgtccacg agagactcca cactggacag 540
aaaccctacg agtgtgctat ttgtcagaga agcttcagga atcagagtaa ccttgctgtt 600
```

```

cacaggagag ttcacagtgg tgagaagccc tatagatgtg atcagtgtgg aaaagccttc 660
agtcagaaag gaagcttaat tgttcacatc agagtccaca caggcctgaa gccctatgcc 720
tgtacccagt gcaggaagag tttccacacc agggggaatt gtattctgca tggcaaaatc 780
cacacaggag agacacccta tctgtgcggc cagtgtggaa aaagcttcac ccagagaggg 840
agtctggctg tgcaccagcg aagctgctca cagaggctca ccctttgacc actttcctga 900
agagaagttc tctttatgaa ttaagagtac aaaatcctct gagatgaagc aacctatcca 960
gttctatgga atgaatggag aatctttcag aaagaccatc attgggtagg gcaaactgat 1020
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aaaaaaaaa a 1091

```

```

<210> 384
<211> 1029
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (1014)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1015)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1026)
<223> n equals a,t,g, or c

```

```

<400> 384
ggcacgagct ggtcaaggcc gttccgctcag tgttttcaga cgccctggga acgcggctgc 60
aggggtccgt cttcggtttg cacagctaga ggccgcgcac agcaaaggat gagcggaacc 120
ttggaaaagg tgctgtgcct gaggaacaat accattttta agcaagcctt ttctctctta 180
aggttttagaa cttcaggaga gaagcccatc tattctgtag gtggaattct actaagtatc 240
agtcggccct acaagacaaa gcccaccac ggcatctggaa agtacaagca cttaattaaa 300
gcagaagagc ccaagaagaa gaagggaaaa gtggaagtga gagccattaa tttggggaca 360
gattatgaat atggggtttt aaatattcat ctgactgcat atgatatgac cctggcagag 420
agtattgccc agtatgttca caacctctgc aactctctct ccattaaagt cgaggaaagt 480
tatgcaatgc caacaaaac catagaagtg ttgcagtgtc aggaccaagg cagcaaaatg 540
ctcctggact cagtgtttac caccatgag cgagtgggtc agatcagcgg tttgagtgtc 600
acgtttgcag aaattttctt ggaaataatc caaagcagtc ttcctgaagg agtcagactg 660
tcagtgaagg agcacactga agaagacttc aagggacgat tcaaagctcg accagaactg 720
gaagaactgt tggccaagt tgaagtagct ctgtagacct tttcatgcca gcagtgttca 780
tattgagtgc caaagagaag agcttactgg gtagtttagag ttcattcagga gacccaaccc 840
ttagatttca taagtaccca tccccatagc cagtaatgtc ctcaactctc tgtggcttgg 900
ctgtacttgc catttcttac cacttaccta tgaggtaatg cttgttatct tccatctaata 960
aaaaatctgc tgcagatgtg taaaaaaaaa aaaaaaaaaa aaaaaagaaa aaannaaaaa 1020
aaaaanaag 1029

```

```

<210> 385

```

<211> 583  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (551)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (574)  
<223> n equals a,t,g, or c

<400> 385  
ccccgggtcg acccacgcgt ccgcccacgc gtccgcrcgg ccgactcgca agatggcgcc 60  
gcagaaagac aggaagccca agaggtcaac ctggagggtt aatttggacc ttactcatcc 120  
agtagaagat ggaatttttg attctggaaa ttttgagcaa tttctacggg agaagggttaa 180  
agtcaatggc aaaactggaa atctcgggaa tgttggtcac attgaacgct tcaagaataa 240  
aatcacagtt gtttctgaga aacagttctc taaaagggtat ttgaaatacc ttaccaagaa 300  
ataccttaag aagaacaatc ttcgtgattg gcttcgagtg gttgcatctg acaaggagac 360  
ctacgaactt cgttacttcc agattagtca agatgaagat gaatcagagt cggaggacta 420  
ggcaaaggct ccccttacag ggctttgctt attaataaaa taaatgaagt atacatgaga 480  
aataccaaga aattggcttt tagtttatca gtgaataaaa aatattatac tcttgaaaaa 540  
aaaaaaaaaa nggcggccgt tttaaagatc ctnaggggc caa 583

<210> 386  
<211> 2410  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2167)  
<223> n equals a,t,g, or c

<400> 386  
tatacccacg cgtccgcgga cgcgtgggtc gctggggtca gcagtgaagc tgcggacctt 60  
cgcggagaac taccctatcc ctgaaccagg cccaaatgag gtcttgctga ggatgcattc 120  
tgttggaatc tgtggctcag atgtccacta ctgggagtat ggtcgaattg ggaattttat 180  
tgtgaaaaag cccatgggtg tgggacatga agcttcggga acagtcgaaa aagtgggac 240  
atcggtaaag cacctaaaac cagggtgatc tgttgccatc gagcctgggtg ctccccgaga 300  
aaatgatgaa ttctgcaaga tgggcccata caatctgtca ccttccatct tcttctgtgc 360  
cacgcccccc gatgacggga acctctgccg gttctataag cacaatgcag cttttgttta 420  
caagcttcct gacaatgtca ctttgaggga aggcgccctg atcgagccac tttctgtggg 480  
gateccatgc tgcaggagag gcggagttac cctgggacac aaggctcctg tgtgtggagc 540  
tgggccaatc gggatgggtc ctttgctcgt ggccaaagca atgggagcag ctcaagtagt 600  
ggtgactgat ctgtctgcta cccgattgtc caaagccaag gagattgggg ctgatttagt 660  
cctccagatc tccaaggaga gccctcagga aatcgccagg aaagtagaag gtcagctggg 720  
gtgcaagccg gaagtcacca tcgagtgcac gggggcagag gcctccatcc aggcgggcat 780  
ctacgccact cgctctggtg ggaccctcgt gcttggtggg ctgggctctg agatgaccac 840

cgtaccccta ctgcatgcag ccatacggga ggtggatata aagggcgtgt ttcgatactg 900  
caacacgtgg ccagtggcga tttcgatgct tgcgtccaag tctgtgaatg taaaaccct 960  
cgtcacccat aggtttcctc tggagaaagc tctggaggcc tttgaaacat ttaaaaagg 1020  
attgggggtg aaaatcatgc tcaagtgtga cccagtgac cagaatccct gatgttaatg 1080  
ggctctgccc tcatccccac agtcttggga tctcaggga caatggctgg acatgggtg 1140  
gctctgatgc agaactttct cttttgaatg ttaagaataa ctaatacaat tcattgtgaa 1200  
cagaagtcct taagcagagg aattggtgtg ccttaaagat acaatctggg atagtttggg 1260  
ggaacttgta gccagaatgc cctgttcag ctgagcaaag ttcagcaagt agagcagagt 1320  
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tctggccctt gggtttcctg gttccactgc tactgaccca gaggggaatg agggctgagt 1440  
tatgaaaaga taacttcatg aagacttaac tggcccagaa gctgattttc atgaaaatct 1500  
gccactcagg gtctgggatg aaggcttgtc agcacttcca gtttagaacg caatgtttct 1560  
agagacatat tggctgtttg ttttgatgat aaaaggagaa taagaaaagg catcactttc 1620  
ctggatccag gataattttt aaaccaatca aatgaaaaaa acaaacaaac aaaaaaggaa 1680  
atgtcatgtg aggttaaacc agtttgcat cccctaattg ggaaaaagta agaggactac 1740  
tcagcactgt ttgaagattg cctcttctac agcttctgag aattgtgtta tttcacttgc 1800  
caagtgaagg accccctccc caacatgccc caccaccacc ctaagyaygg tcccttgtca 1860  
ccaggcaacc aggaaactgc tacttggtga cctcaccaga gaccaggagg gtttggttag 1920  
ctcacaggac tccccccacc ccagaagatt agcatcccat actagactca tactcaactc 1980  
aactaggctc atactcaatt gatggttatt agacaattcc atttctttct ggttattata 2040  
aacagaaaat ctttctctct ctcattacca gtaaaggctc ttggtatctt tctgttgga 2100  
tgatttctat gaacttgtct tattttaatg gtgggttttt tttctggtaa gattggacct 2160  
aaatcgatc atgcaactgt gacttgrcta tctcagatga gtatgtgct catcgtggct 2220  
accttatctt attgcatgtg aagtagttag agctgttctg actggacgtt ccttggcggg 2280  
gttggtgggg ggggatgtgt gtgaaaaata ttcggccgtt ggggggttccg gccgctgcat 2340  
ggcatcctac gcctcgtggg ggcccctttg agcgcgcggt ggcccgtctt ctcggtccaa 2400  
ggccgcgcgg 2410

&lt;210&gt; 387

&lt;211&gt; 689

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 387

agtaggcaga gtttacaaag gtctaggatg acatctggtg tattgactgt ggccagtctt 60  
aaagctagtt tttgctatgt ggaacatgct gctctaattc agatttaaag agtttcttcc 120  
tgtaatttcg aagctcactg tgcctcttgt ttccgaggga agaaggactg attaagtcac 180  
ctaaatggat gcaatactga attacaggctc agaagatact gaagattact acacattact 240  
gggatgtgat gaactatctt cggttgaaca aatcctggca gaatttaaag tcagagctct 300  
ggaatgtcac ccagacaagc atcctgaaaa ccccaaagct gtggagactt ttcagaaact 360  
gcagaaggca aaggagattc tgaccaatga agagagtcga gcccgctatg accactggcg 420  
aaggagccag atgtcgatgc cattccagca gtgggaagct ttgaatgact cagtgaagac 480  
ggtgggtttc tcgctgggtg cgacgtgaat ttgtgaagct caggatgcc atggattaga 540  
ctcatgtagt agcttaaaga gtcattaggc gataggagg agaaaaccaa gaagtttagca 600  
gagtctggat ataattcagt gtccgtaaat cccatgaaga gaagctcatc agaataaagg 660  
caatgaattt gtgcyaaaaa aaaaaaaaaa 689

&lt;210&gt; 388

&lt;211&gt; 798

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

<220>

<221> misc feature

<222> (215)

<223> n equals a,t,g, or c

<400> 388

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gctcctgccg ctcccgtgc cgcgcctcct gcggagaagg cccctgtaaa gaagaaggcg 120
gccaaaaagg ctgggggtac gcctcgtaag gcktcgggtc ccccggtgtc agagctcatc 180
accaaggctg tggccgcctc taaagagcgt aggangtttc tctggctgct ctgaaaaaag 240
cgttggctgc cgccggctat gatgtggaga aaaacaacag ccgtatcaaa cttggtctca 300
agagcctggt gagcaagggc actctggtgc aaacgaaagg caccggtgct tctggctcct 360
ttaaactcaa caagaaggca gcctccgggg aagccaagcc caagggtaaa aaggcgggcg 420
gaaccaaacc taagaagcca gttggggcag ccaagaagcc caagaaggcg gctggcggcg 480
caactccgaa gaagagcgt aagaaaacac cgaagaaagc gaagaaggcg ccgcggccac 540
tgtaaccaag aaagtggcta agagcccaaa gaaggccaag gttgcgaagc ccaagaaagc 600
tgccaaaagt gctgctaagg ctgtgaagcc caaggccgct aagcccaagg ttgtcaagcc 660
taagaagcgg cgcccaagaa gaaatagcga acgcctactt ctaaaaccca aaargctctt 720
ttcagagcca ccaactgatct caataaaaga gctggataat ttcttttaaaa aaaaaaaaaa 780
aaaaaaaaaa aaaaaaaaaa                                     798
```

<210> 389

<211> 1691

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (436)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1575)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1630)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1636)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1651)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1664)

<223> n equals a,t,g, or c

<400> 389

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atttgggcct tatatgtcaa gccctttggt ttccgtctta ttttaggggt tgttatgggg 60
scctgggtgg tcggcctcac atgggaaggg gatgggtagt ggatgggggt tctgttgat 120
cttgtgggcg ggtaattttg cttttgtttt tgttcacatt cttccccctc cacaagccaa 180
agtcgtttca tttggtttcc actgtgtgga ctgtgctgga gcttggcgcc tgccagaaaa 240
atttggggct aggcaagccc cagggtgcag acatggtgaa gcagagaaac tgttcttctg 300
gttcctgcac aacctcagag gggcaaaaac cctccccagg aaggaggagg gtgttcagga 360
gccagacttt tggagagaag gcagctccca gcctgctggg tgaccgccat tctgcgtgtg 420
ttccccagct gggcanggct ggaagcctta cgtatgaagc atggagaagc agccattgtc 480
cccactatgg gcagaggggg gaccggctg gcccttggg tcagactgga gccaacaccg 540
ccagccaccc cctctggctg ctggcaatgc cacagggtgcc caagaagatg gaggatccct 600
gtgccaggag ccaacctggt stccccgagg gtcagtggcc cagtgaagac agaagcgaga 660
gaataaagtt ccctgtaggt cctctgtcac ctttgggttg tgtttttcaa ttgttgacat 720
ttcagagggg accctccaga agcccagccg gcttccccca aggactcccc cttcgtggg 780
agtggatttc cacacgtgcc tttgatttcg gacagattgg gcctcacagc caccgattca 840
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caccctgctc cccaccagc cagggcagca tgggaccag tgtctcagt ccttcaaaac 960
ccacccccac ccctacccta ccccaccaca ccccatccca gaggccttgc ctgggcaamc 1020
ctaagccctt gtccctcgcc atacactgat gcctggcagc tagagcaaat ggctcgtgtt 1080
ctttgtcgaa gcctgtggtg agattgtttt gtttcctttt gttttgtgag tttgtttaaa 1140
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tctgctagat tgcagtacta atggtagtgg tttagtgtct tcatgttaat attatttgta 1260
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caagggggaa gggcctgcag cctccgctcc tcaaatgtct gcactgaacc agttccagtc 1560
actaattgcg ccaancaagg ccaggaagga attcaaaaca tgttctggcc aagcacaaga 1620
acatcccan tgggantgga acacaatgct ncccaaaaac ctgnctttcc tggccttccc 1680
caacaactgg g                                     1691
```

<210> 390

<211> 454

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (425)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (444)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (451)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 390

```

gcgacggcgc tggcttgccc ggctgggaga gggcgtaagc aaaatgatgc ttcaacaccc 60
aggccaggtc tctgcctcgg aagtgagtgc ttctgccatc gtcccctgcc tgtcccctcc 120
tgggtcactg gtgtttgagg attttgctaa cctgacgccc tttgtcaagg aagagctgag 180
gtttgccatc cagaacaagc acctctgcca ccggatgtcc tctgcgctgg aatcagtcac 240
tgtcagcgac agacccctcg ggggtgtccat cacaaaagcc gaggtagccc ctgaagaaga 300
tgaaaggaaa aagaggcgac gagaaagaaa taagattgca gctgcaaagt gccgaaacaa 360
gaagaaggag aagacggatg cctgcagaaa gtgagtgcct tctaacctta cccttctctc 420
gctangcctg tctttaccaa cttnatgtgg ntat 454

```

&lt;210&gt; 391

&lt;211&gt; 807

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (527)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (586)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (735)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (805)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 391

```

caagctctaa tacgactcac tatagggaag gctgggtacgc ctgcaggtac cgggtccggaa 60
ttcccggggtc gacccacgcg tccggggcga aaaccgaagt tggaagtgtc tcttagcagc 120
gcgcggagaaa gaacggggag ccagcatcat ggcagaacag gatgtggaaa acgatctttt 180
ggattacgat gaagaggaag agccccaggc tcctcaagag agcacaccag ctccccttaa 240
gaaagacatc aagggatcct acgtttccat ccacagctct ggcttccggg actttctgct 300
gaagccggag ctcttgcggg ccacgtgga ctgtggcttt gagcatcctt ctgaggtcca 360
gcatgagtgc attccccagg ccacctggg catggacgtc ctgtgccagg ccaagtccgg 420
gatgggcaag acagcgggtc tcgtgctggc caccctacag cagattgagc ctgtcaacgg 480
acaggtgacg gtcttggtca tgtgccacac gagggagctg gccttcnaga tcagcaagga 540

```



atatgagcgc ttttccaagt acatgcccag cgtcaagggtg rgtcyntcgg ccagactgga 600  
ccaggcgcca cttggkttct gmagctttgk tagcctcggc tctggcccar ccagcattta 660  
ccaagcttg caagggcagc tgcctttgaa ggtttgagc ggtttttgct ccttaaaagc 720  
ctgattgaat tatgncatgg ctcccagggg cctgcgccag ttcccagcct ggggctgcct 780  
ttgaaatggg aaccccgga aggcnc 807

<210> 392

<211> 927

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (916)

<223> n equals a,t,g, or c

<400> 392

ctgcagcggg agctggatga ggccacggag agcaacgag ccatgggagc gaggtgaacg 60  
cactcaagag caagctcagg cgaggaaacg agacctcttt cgttccttct agaaggtctg 120  
gaggacgtag agttattgaa aatgcagatg gttctgagga ggaaacggac actcgagacg 180  
cagacttcaa tggaaccaag gccagtgaat aagcaacttt ctacagtttt gcaccacggc 240  
aagaaaacca aaaacaaaaa caaacaaaca aaaaaaaccc aacaacaacc cagaacaaaag 300  
caaaacccag cagactgtac ttagcattgt ctaaattccat tctcaaattc caaatatcac 360  
agacaccctt cmcacaggaa acttcgcagt gatgcaccag gcgaggaaac gagacctctt 420  
tcgttccttc tagaaggtct ggaggacgta gaagttattg aaaatgcaga tggttctgag 480  
gaggaacgg acactcgaga cgcagacttc aatggaacca aggccagtga ataagcaact 540  
ttctacagtt ttgcaccacg gcaagaaaac caaaaaccaa aacaaacaaa caaaaaaac 600  
ccaacaacaa cccagaacaa agcaaaaacc agcagactgt acttagcatt gtctaaatcc 660  
attctcaaat tccaaatatt acagacacc ctcacacaag gaataataaa accaccacc 720  
tccagcctgg gcaacgtagt aaaaacctca tctatacaag attttaaaaa taagctgggc 780  
gtggtggtac acacctgtgg tcccagctac tagggaggct gagccaggaa gaacgstyca 840  
gccaggayt tcgrggctgc aatgagctat aattgcatca ttgcactcca gcctgggcaa 900  
cagagaccct gttttnaacc accacca 927

<210> 393

<211> 1023

<212> DNA

<213> Homo sapiens

<400> 393

ggcacgagcc accacgaggc caccaggggtg actgcgggat tccgatctgc gccggagctg 60  
cgatgctaga gcactcttgc caccaccacc ccacggacgt gttgcagtga tatcagaatt 120  
ttgcgtgagg tttaccctgt tttaacctct ttgcgtctcg cttctgaatc gtatccactt 180  
gagcatcact agactgatct attttaacac tgggtggggg cagcgaggac atgggttttaa 240  
actttaaaat gaaaatgtga aactaggaat gttgctgtga gacccttg acaaacagat 300  
ttttgactg gggatagaac ttgagcaatt tctgtcttgg cctcgccact gacgtccctt 360  
ctttcctgtg gggacaggat ggacagattc ctggtgaaag gggctcaagg gggccttttg 420  
aggaagcagg aggagcaaga gccaaactgga gaagagccag ctgtgttggg aggagacaaa 480  
gaaagcacia ggaagaggcy caggagagag gcccaggga atggaggcca ctcagcaggc 540  
cctagctggc ggcacattcg ggctgagggc ctggactgca gttacacagt cctgtttggc 600  
aaagctgagg cagatgagat tttccaagag ttggagaaag aagtagaata ttttacaggt 660

```

ataaagatgg ctgtgaccac atcgggggagc accgagatga tgaaagagaa ctggcccctg 720
ggagcccat  tgcctctgtc tccttcggtg cctgcagaga ctttgtcttc cggcataagg 780
attcccgtgg gaaaagcccc tccaggaggg tggcggtggt caggctgccg ctggcccacg 840
ggagcttact aatgatgaac caccgacca acacgcactg gtaccacagt cttcccgta 900
gaaagaaggt tctggctcca cgggtgaatc tgacttttcg taaaattttg cttactaaaa 960
aataaaaaa tttttaacag ttaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaa

```

1023

```

<210> 394
<211> 822
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (550)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (788)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (813)
<223> n equals a,t,g, or c

```

```

<400> 394
aaaaatttta aacaaagaaa ggaaaaaaat tgacaataaa agtcactctt ctaattgaat 60
atttttatat ttttatgaaa caaaagagca tttcttcagg tttctattgt atttttttta 120
acattcttgc agagaaagca agatccaaat tgattttggg atattaaaag ttaacagaac 180
actgaacaag gaaagaatgg catagatcta tctttacagt ctggagttaa ttctgttaa 240
ctcattttat ccattcctta cataatcttc tttcctgtta gtccagtttg atggtgtgaa 300
tggtgaattt caggccagtg tgctaaattt tgtggcatct tcctctagtc cttcccacct 360
ccagtcatca gccccactct gtcttgagga caggcaggag gtgggggaag agctgaatct 420
ctttattttc cctggtagag acatcttcaa ggcatgaaat agcttaaaga gcagagtaga 480
aatggaagag gctttgcaaa aggctagata actaacaaca cctgggttgg ggcgccggcc 540
tcttctcttn cagctccctt agcttggtc cgtaagtggg tcacttgcca aatgctttag 600
atgattgcct ctcaataatt gaaaggtggt ggtagttgta ttctaaatga tgtagaaggt 660
taaaaaataa tacattatgc ttctattcta tcatctaaaa cmaatcatta aaactaattt 720
ctagctaaat kgtttaattat aattatgctc agaatctatt aatgagctct gctggcttac 780
gactgcgngt taagagaaat ctttacaaga ccnaggcctg aa

```

822

```

<210> 395
<211> 1702
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature

```

<222> (1694)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1696)

<223> n equals a,t,g, or c

<400> 395

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gcttctttttg tttctgatta tgttttctgc agagagacac gggctcaagg aacccaagag 60
agtggaagaa ctgcaaaaaca agattgtaaa ttgtctcaaa gaccacgtga ctttcaacaa 120
tggtgggttg aaccgccccca attatttgts caaactggtg gggaagctcc cagaacttcg 180
taccttttgc acacaggggc tacagcgcat tttctacctg aaattggaag acttggtgcc 240
accgccagca ataattgaca aacttttcct ggacacttta ctttctaaag acctcctccc 300
aagcacttca aaggaactgg aatgataatg gaaactgtca agagggggca agtcacatgg 360
gcagagatag ccgtgtgagc agtctcagct caagctgccc cccatttctg taacctcctc 420
agcccccttg atccctaaag aaaacaamca aacaaacaaa aactgttgct atttcctaac 480
ctgcaggcag aacctgaaag ggcatttttg ctccggggca tcctggattt agaacatgga 540
ctacacacaa tacagtggta taaacttttt attctcagtt taaaaatcag tttgttggtc 600
agaagaaaga ttgctataak gtataatggg aaatgttttg ccatgcttgg ttgttgcaagt 660
tcagacaaat gtaacacaca cacacataca cacacacaca cacacacaga gacacatctt 720
aaggggaccc acaagtattg cccyttaaca agacttcaaa gttttctgct gtaaagaaaag 780
ctgtaatata tagtaaaact aaatgttgcg tgggtggcat gagttgaaga aggcaaaggc 840
ttgtaaatat acccaatgca gtttggtctt ttaaattatt ttgtgcctat ttatgaataa 900
atattacaaa ttctaaaaga taagtgtggt tgcaaaaaaa araaaaawaaa tacataaaaa 960
agggacaagc atgttgattc taggttgaaa atgttatagg cacttgctac ttcagtaatg 1020
tctatattat ataaatagta tttcagacac tatgtagtct gttagatttt ataaagattg 1080
gtagttatct gagcttaaac attttctcaa ttgtaaaata ggtgggcaca agtattacac 1140
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ttgtaagtgt tgtatgtacc gttgatgttg ataaaaagaa agtttatatc ttgattatct 1260
tgttgtctaa agctaaacaa aacttgcatg cagcagcttt tgactgtttc cagagtgtct 1320
ataatataca taactccctg gaaataactg agcactttga atttttttta tgtctaaaat 1380
tgtcagttaa tttattattt tgtttgagta agaattttta tattgccata ttctgtagta 1440
tttttctttg tatatttcta gtatggcaca tgatatgagt cactgccttt ttttctatgg 1500
tgtatgacag tttagatgac tgattttttt tctgataaat tctttctttg agaaagacaa 1560
ttttaatgtt tacaacaata aaccatgtaa atgaaaaaaa aaaaaaaa aa aaaaaaaa 1620
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1680
aaaaaaaaa gggngnccgt tt 1702
```

<210> 396

<211> 858

<212> DNA

<213> Homo sapiens

<400> 396

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cttgggcttc tgacatgact tatgtgtgtg tgtgtttttg ggggtggggag ggagggagag 60
aagagggggc taaatttgat gctttaactg atctccaaca gttgacaggt catccttgcc 120
agttgtataa ctgaaaaagg acttttctac caggtatgac cttttaagtg aaaatctgaa 180
ttgttctaaa tggaaagaaa aaaagttgca atctgtgccc ttcattgggg acattcctct 240
aggactggtt tggggacggg tgggaatgac ccctaggcaa ggggatgaga ccgcaggagg 300
aaatggcggg gaggaggcat tcttgaactg ctgaggatgg ggggtgtccc ctcagcggag 360
```

```

gccaaagggag gggagcagcc tagttggtct tggagagatg ggggaaggctt tcagctgatt 420
tgcagaagtt gcccatgtgg gccccagcca tcagggtctgg ccgtggacgt gcccctgccc 480
actcacctgc ccgcctgccc gcccgcgcgc atagcacttg cagacctgcc tgaacgcaca 540
tgacatagca cttgccgatc tgcgtgtgtc cagaagggtgc ccttgggccga gcgccgaact 600
cgctcgccct ctagatgtcc aagtgccacg tgaactatgc aatttaaagg gttgaccac 660
actagacgaa actggactcg tacgactctt tttatatattt ttataacttga aatgaaatcc 720
tttgcttctt ttttaagcga atgattgctt ttaatgtttg cactgattta gttgcatgat 780
tagtcagaaa ctgccatttg aaaaaaagtt atttttatag cagcaaaaaa aaaaaaaaaa 840
rakcaaagw tttcattt 858

```

<210> 397

<211> 1110

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (225)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (996)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1100)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1106)

<223> n equals a,t,g, or c

<400> 397

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cggctgggct gcggaaacgc ggccgggtccg gttccgcggc ccaggcagag ggactctgca 60
agcaatggct gcagcgcgcc tggcaagagc ggcgcctgct gctgcgggag ccgcgctaca 120
cgctgctggt ggccgcctgc ctctgcctgg cggaggtggg catcaccttc tgggtcattc 180
acagggtggc atacacagag attgactgga aggcctacat ggccnaggta gaaggcgtca 240
tcaatggtac ctatgactat acccaactgc agggtgacac cggaccactt gtgtaccag 300
ctggtttcgt gtacatcttt atgggggtgt actatgccac cagccgaggc actgacatcc 360
gcatggccca gaacatcttt gctgtgctct acctggctac cttgctgctt gtcttcttga 420
tctatcacca gacctgcaag taacctccct tcgtcttttt ctcatgtgc tgcgcctctt 480
accgtgtcca ctccatcttt gtgctgcggc tcttcaatga cccagtggcc atggtgctgc 540
tcttcctcag tatcaacctc ctgctggccc agcgtgggg ctgggggttg tgctttttca 600
gcctggcagt ctctgtgaag atgaatgtgc tgctcttcgc ccttgggtta ctgtttcttc 660
tcctcacaca gtttggttcc cgtggggccc tccccaaagt gggaatctgt gctggccttc 720
aggtggtgct ggggctgccc ttctgctgg agaaccocag cggctacctg tcccgctcct 780
ttgaccttgg ccgccagttt ctgttccact ggacagtga ctggcgcttc ctcccagagg 840
cgctcttctc gcatcgagcc ttccacctgg ccctgttgac tgcccacctc accctgctcc 900

```

tgctgtttgc cctctgcagg tggcacagga caggggaaag tatcttgtcg ctgctgaggg 960  
atccctccaa aaggaagggt ccaccccagc cccttnacac ccaaccagat cgtttytaac 1020  
ccttttcaac tccaatttca ttgggsatct ggtttcagsc gkttccttcc attaacagtt 1080  
tttaagggtt gggtattttt caaaanattg 1110

<210> 398

<211> 864

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (823)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (830)

<223> n equals a,t,g, or c

<400> 398

gcggcacgtg gcgcgggtgc ggggcgtgga gtggcgtggc gtggagtggc gtggcgtggc 60  
gggggtctcgc ggcgcgggcg cgcacccgga gctgtggacg gagagtgcct ccctctggcc 120  
tcagtcttct catgtttag tagcggacat ggcccggacc ggccscgag accgccccgt 180  
gcaacctcac cgccagcctg ggggcctcag cgactgggac gggaccaagg ggctcgggga 240  
ttctccctgc ccccgccct ggtgcgtgac tgaccctcct gttcccagag ccccagcgc 300  
argccgggat gttcgtcctg gtggaaatgg tggacaccgt ccggatcccc ccttggcagt 360  
ttgagaggaa gctcaacgac tccattgccg aggagctgaa caagaagttg gccaacaagg 420  
tcgtgtacaa cgtgggactc tgcatttgtc tgtttgatat caccaaactg gaggatgcct 480  
atgtattccc tggggatggc gcatcacaca ccaaagtcca ttttcgctgc gtggtgtttc 540  
atccattcct agatgagatt ctcatggga agatcaaagg ctgcagccca gaaggagtgc 600  
acgtctctct aggtctcttc gatgacattc tcatcccccc agagtcaactg cagcagccag 660  
ccaagttcga cgaagcggag cagggtgtggg tgtgggagta cgagacggag gaaggagcac 720  
acgacctcta catggacacc ggcgaggaga tccgcttccg ggtggtggac gagagctttg 780  
ttgacacgtc ccccacargg ccagytacg cagatgccac cantttccan tgargagctg 840  
ccaaagaagg aggtcccgtt acac 864

<210> 399

<211> 271

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (251)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (263)

<223> n equals a,t,g, or c

&lt;400&gt; 399

```

tggattttta taaggccaga catttacctc tggtaatctc ttgagccatg tgtttcattt 60
ttatgctcac agaataattt ggtgtaatgg ggcttatyaa cccaaatttc agaactttaa 120
attcatgtat ctttttctac actgatgact atactcaaag catcttactt taattatata 180
aatgtatata ctgtctttct caactggggt ttcaagagag aattaagccc aaaataaaat 240
aatttggtg ngcttatttt ctncattttt c 271

```

&lt;210&gt; 400

&lt;211&gt; 925

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (54)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (364)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (635)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (844)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (900)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 400

```

ctcgtgccga attcggcacg agcasgagcg cgtgctcagt gtgctgggta cagncgactc 60
cgggacaggg ggtctcggcc gtcggcgta tggtttcgcg cgtgcagctc ccgcctgaga 120
tccagctggc tcagcgctg gcggggaatg agcaggtagc ccgggaccgg gcggtgagga 180
agctccggaa atacatcgtc gccaggactc agcggggccgc agtggtttta cgcacgacga 240
gctgctgaag gtgtggaaag gactgtttta ttgcatgtgg atgcaggaca agccactcct 300
ccaggaagaa ttaggaagga ctatttccca gctcgttcat gcttttcaga ccacggaggc 360
gcanacctgt tccttcaggc cttctggcag accatgaatc gcgagtggac gggcattgac 420
aggctgcgct ggataaattc tacatgctca tgcggatggt cctgaacgag tccttgaagg 480
ytctgaagat gcaaggctgg gaagaaagac agatcgagga gctgctagag ctgctgatga 540
ctgaratcct gcacccagc agccaggccc ccaacggtgt gaagagccac ttcacgaga 600
tcttcctgga ggagctgacc aaagtgggcg ccgangsagc ttacggcaga ccagaacctg 660
gaagttcatc gacccttct gcagaatcgc tgcccggacc aaggattcct tggttttgaa 720

```

caacatcact cgaggcatct ttgagacgat tgtggagcag gccccgcttg ccattgaaga 780  
cctcctgaat gaactggaca cacaggatga ggaggtggcg tcggacagtg atgagtcctc 840  
tganggcggt gaacgttgag acgcgctgtc ccagaagagg tctgagaagc cgcccgcn 900  
ttccatctgc agggctgaac ctgag 925

<210> 401  
<211> 1085  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (774)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1080)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1085)  
<223> n equals a,t,g, or c

<400> 401  
cggacgcgtg ggtgctgggg ctgcagmgt gcctccgaga ccgcgaggtg ggtggagcgg 60  
gtcttcctgg aaggggtgcga taaggccggg cgaggtgcct gggatgcttc tccccctccg 120  
cgaggaagag atctaattgg gtagggcggg ttagactag cctgccgagc cgcccgctgg 180  
cacctgcagc ctccctgggcg cccgccgggc cccggcgaga aagttgttaa agggagcag 240  
gtggttggtc ctgggggtccg aggcgcgcct ctacgcctt gcccaacaga agccgcagtc 300  
ccgtgggggtc tggagacgca gtttcctgtt aatgacaata aatccctgct ccccttgcct 360  
cagacatcta cgcagcgaata tcgagcctgg ccttgagggt ccacaccgcg agggagatg 420  
cgtgcgcccc ttccagagcc taagcctgga gacctgattg aratttttcg ccctttctac 480  
agacactggg ccatctatgt tggcgatgga tatgtggttc atctggcccc tccaagtga 540  
gtcgcaggag ctggtgcagc cagtgtcatg tccgccctga ctgacaaggc catcgtgaag 600  
aaggaattgc tgtatgatgt ggccgggagt gacaagtacc aggtcaacaa caaacatgat 660  
gacaagtact cgccgctgcc ctgcagcaaa atcatccagc gggcggagga gctgggtggg 720  
caggaggtgc tctacaagct gaccagtga aactgcgagc actttgtgaa tganctgcgc 780  
tatggagtcg cccgcagtga ccaggtcaga gatgtcatca tcgctgcaag cgttgcagga 840  
atgggcttgg cagccatgag ccttattgga gtcattgtct caagaaacaa gcgacaaaag 900  
caataactga aaaagactgt cctgtcagcg atgactttat acatcaaggg ggtcttggtt 960  
tgctagagag tttgggggtt gggttggtga ttctattgtg atttataata aggcttattt 1020  
tcacagaata aaataaagca aaacgaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080  
ggggn 1085

<210> 402  
<211> 348  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (65)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (149)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (308)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (343)  
<223> n equals a,t,g, or c

<400> 402  
ctttcccca cccckggsc cgggggggtt gggcccggg gcccccgggc ctttccttta 60  
aaggnaaaac cttwaaggg tttggggaaa ttccccccc ccggggggg gccctttgcc 120  
caaaggggaa aaattttccg ggggccaanc cggaaggcc ccaaaaaagg ttccccccg 180  
ggaaggaatc ccggttgga attgttaaaa ccaaagggg aattttgaag gccggaaatt 240  
cggttgccc ccaacttcc ccaacattc ccggggggac ttgggggctg gaacgatgcc 300  
ttgggagnct tcggcaagct tcgcaaggct ggttggtcag ctngcgca 348

<210> 403  
<211> 1470  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (4)  
<223> n equals a,t,g, or c

<400> 403  
tgngctcca ccgcggtgac gaccgctcta gaactagtgg atcccccggt ctgcaggaat 60  
tcggcagagg cagwgccggc gtgggcggcc ggccgaggcg gaggcgcagg aagggggckg 120  
cgagtcgtgc gaggtgccc ttctactca gcattatgga tccaagcctg ttgagagaaa 180  
gggagctggt caaaaaacga gctctttcta ctctgtagt agaaaaacgt tcagcatctt 240  
ctgagtcatc atcatcatcg tcaaagaaga agaaaacaaa ggtagaacat ggaggatcgt 300  
caggctctaa acaaaattct gatcatagca atggatcatt taacttgaaa gctttgtcag 360  
gaagctctgg atataagttt ggtgttcttg ctaagattgt gaattacatg aagacacggc 420  
atcagcgagg agatacgc cctctaacct tagatgaaat tttggatgaa acacaacatt 480  
tagatattgg actcaagcag aaacaatggc taatgactga ggcttttagtc aacaatccca 540  
aaattgaagt aatagatggg agtatgctt tcaagcccaa gtacaacgtg agagataaga 600  
aggccctact taggtcttta gatcagcatg accagcgagg attaggagga attcttttag 660  
aagacataga agaagcactg cccaattccc agaaagctgt caaggctttg ggggaccaga 720



tactatttgt aaatcgcccc gataagaaga aaataactttt cttcaatgat aagagctgtc 780  
agttttctgt ggatgaagaa tttcagaaac tgtggaggag tgtcactgta gattccatgg 840  
acgaggagaa aattgaagaa tatctgaagc gacagggtat ttcttccatg caggaatctg 900  
gaccaaagaa agtggccccc attcagagaa ggaaaaagcc tgcttcacag aaaaagcgac 960  
gctttaagac tcataacgaa cacttggtctg gagtgctgaa ggattactct gacattactt 1020  
ccagcaaata gggaacagtt ttgccctgga acagagttac agatacacia tcaagagtgt 1080  
tcttgctgat gctcgggggc tgaagactgt cttcctatct gcttcttgcg gctgaggaga 1140  
ggagcagttc agtttacaaa acaagtgc aaattacaaac tcaaagctta tttgagtaga 1200  
atgggctcat gggcaatgtg atgttccctg ttaaccttct gttactccct gggagaaagg 1260  
cgctgagcgt ggcagtcagg tgtctttgct gtgtttttct ccacttctaa atgggtccctg 1320  
gttcccttct tctcgttttg ttactttaga gcaagtttgc ccatagtctt gaatgcaata 1380  
tttgtttatt ccaaaagaac atatttataa taaaatcact gtagaaggat taaaaaaaaa 1440  
aaaaaaaaaa aaaaaaaaaa aggggagggg 1470

<210> 404

<211> 2487

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (78)

<223> n equals a,t,g, or c

<400> 404

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gcatctgtac agagagcaga cactagctta aacaactgtg aagggtgctg tggcagcaca 540  
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gtcactcagc ccagtccatc agtttctcag ccagtagctt ctcagagtga agaaaaagct 720  
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aaccatcaag ccaacaacag ggtcttgaga taacctttga agcttattgt actggcctgc 1620
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ttctctctct ctctctctcc tcgtgcc 2487
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<210> 405

<211> 1256

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1180)

<223> n equals a,t,g, or c

<400> 405

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agtttttgtt ccgctccgca gcgctcttcc cgggcaggag ccgtgaggct cggaggcggc 180
agcgcggtcc ccggccagga gcaagcgcgc cggcgtgagc ggccggcggc aaaggctgtg 240
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aaaagacaag ttgaagagtg agttggtcgc caacaatgtg acgctgccgg ccggggagca 360
gcgcaaagac gtgtacgtcc agctctacct gcagcacytc acggctcgca accggccgcc 420
gctccccgcc ggcaccaaca gcaagggggc cccggacttc tccagtgcgc aagagcgcga 480
gcccaccccg gtcytcgggt ctggggccgc cgccgcgggc cggagccgag caccgtcggc 540
aggaaagcca caaaaaaac tgataaaccc agacaagaag ataaagatga tctagatgta 600
acagagctca ctaatgaaga tcttttggtt cagcttggtg aatacggagt gaatcctggt 660
cctattgtgg gaacaaccag gaagctatat gagaaaaagc ttttgaaact gagggaaaca 720
ggaacagaat caagatcttc tactcctctg ccaacaattt cttcttcagc agaaaataca 780
aggcagaatg gaagtaatga ttctgacaga tacagtgcgc atgaagaagg aaagaagaaa 840
gaacacaaga aagtgaagtc cactagggat attgttcctt tttctgaact tgggaactac 900
tccctctggt ggtgggattt tttcagggtt tttcttttcc tgaaatctcc acccgtcctc 960
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ctgaaaggaa tttgtttatt tcatgcaagt ctagccatga taggtgttta gagggaaaagt 1140
tcttcgtcat cttctcagcc tggaacacag tgccatgttn gtgtctactg cagcttttcc 1200
tttctactgat taaagaaacc accactgggt tattataaag gcatagtagg aaaata 1256
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<210> 406

<211> 771  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (200)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (205)  
<223> n equals a,t,g, or c

<400> 406  
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ccagggacac ccaattcatc gtaatcatca tgaataatca aaaagtggta gctgtgctac 180  
tgcaagagtg caagcaagtn ctggntcagc tcttgttggg agcgccagat gtgtcggaag 240  
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tccaggaggc aaaggaaatg aagtggccct tcgtgcctga aaagtggcag tacaacaag 360  
ccgtggggcc agaggacaaa acaaacctka aggatgtgat tggcgccggg ttgcagcagt 420  
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tgttcttggg ggaccgggtc ctgtatgggs tcgacgtctc tggaaaaact ctgcaggtcg 540  
ccaaagggtc ccacaagttg cagccagcca cgccaattgc cccgcaggtg gttattcgcc 600  
aagcccgaat ctccgtgaay tcaggaaaac ttttaaaagc agagtatat ctgagcagtc 660  
taataagcaa caatggagca acgggtacct ggctgtacag aaatgaaagt gacaagggtc 720  
tggtgcagtc ggtctgtata cagatcagag ggcagattct gcaaaagctg g 771

<210> 407  
<211> 2643  
<212> DNA  
<213> Homo sapiens

<400> 407  
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tcatttcagg tgcagatgac cgtcttggtta aaatatggga ttatcagaat aaaacatgtg 180  
tgcagacact ggaaggacat gcccaaaatg tgtcttggtc cagctttcat cctgagttgc 240  
caatcattat cacaggttca gaagatggaa cagtacgtat ttggcattca agcacctacc 300  
ggcttgagag cacactgaat tatggaatgg agagggtatg gtgcgtggcc agtctaagag 360  
gggtcaaaca tgctgctttg ggctatgatg aaggagcat cattgttaag cttggtcggg 420  
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tccagcaggc caacctaaaa gcaatgggag atgctgaaat taaagatggg gaaagattgc 540  
cactggcagt aaaggatatg ggcagttgtg aaatataccc tcagactatt cagcacaatc 600  
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cattgagaaa caagagcttt ggatctgctc aggagtttgc atgggcccac gattcttcag 720  
agtatgcaat aagagagagc aacagcattg taaagatatt taagaacttt aaggaaaaaa 780  
aatcatttaa accagatttt ggagcagaaa gtatctacgg cggcttctta ttgggagtca 840  
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cacacttttt ggaaaagcag ggcttcaagc agcaagctct tacagtatcc acagatcctg 1440  
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gatttttttc atactattag accatatctc ataaaacctt ttgaattaat gaaggactt 2520  
gtttcctttc tcaataatga aaataggctt ctagttttag aaggctgagc cgaaactaca 2580  
ccttgccctag ggatcagccc cactgtcttt tctttgtata actwaatctg cattttcaaa 2640  
tgt 2643

<210> 408

<211> 1646

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (55)

<223> n equals a,t,g, or c

<400> 408

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aacagcaggt gcggccatcg cccagcacat ggatgttgac aaagttgcct tcaccggttc 180  
caccgaggtg ggccacctga tccagaaagc agctggcgat tccaacctca agagagtcac 240  
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cgtggagcag tgccacgaag ccctgttctt caacatgggc cagtgtgtgt gtgtggctc 360  
ccggaccttc gtggaagaat ccattctaca tgagtttctc gagagaaccg tggagaaagc 420  
aaagcagagg aaagtgggga acccctttga gctggacacc cagcaggggc ctgaggtgga 480  
caaggagcag tttgaacgag tcctaggcta catccagctt ggccagaagg agggcgcaaa 540  
actcctctgt ggcggagagc gtttcgggga gcgtgggttc ttcattcaag ctactgtctt 600

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cctgttcaag ttcaagaaga ttgaggaggt gggtgagagg gccacaaca ccaggatatg 720
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aaaaaaaaa aaaaaaaaaa aaaaaa 1646
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<210> 409

<211> 876

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (146)

<223> n equals a,t,g, or c

<400> 409

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cacactgact cgagtgaat ttggtgccgt gactaggatc gggggacctc ccttgggaga 120
tcaatcccc gtcctcctac acttttctct gtgagaaaga tccacctaca acctcaggtc 180
ctcagaccra ccagcccaag aaacatctca ccaatttcaa atctggcacc cactggaaat 240
cagactgcc agctcgcccg acagccactc ctggagcccc taaagctcta gcccaaggct 300
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cctgaaaact cccccactct ggtgccaaact tggacaacac tcttttatgc actctttttt 600
agttatcccc acctgcccac ttcctttatt aggccgaaat attttaacca aattatctgc 660
ttccctgact attcctggag tacagctaca tctcattgct gcccttcttc ccaatccaaa 720
gcctcctttg tgcctctaa catccccaca atatcaccac ttaccacaag acctcccttc 780
agcttaatct ctcccactct aggttcccac gccgccccta atcccacttg aagcagccct 840
gagaaacatc gtccattctc tctccatacc accccc 876
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<210> 410

<211> 1850

<212> DNA

<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1817)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1848)  
<223> n equals a,t,g, or c

<400> 410  
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gagagagtcg gagacactat ccgcttccat ccgtcgcgca gacctgccg gagccgctgc 120  
cgctatggat gatcgagagg atctgggtgta ccaggcgaas ctggccgagc aggctgagcg 180  
atacgacgaa atgggtggagt caatgaagaa agtagcaggg atggatgtgg agctgacagt 240  
tgaagaaaga aacctcctat ctgttgcata taagaatgtg attggagcta gaagagcctc 300  
ctggagaata atcagcagca ttgaacagaa agaagaaaac aagggaggag aagacaagct 360  
aaaaatgatt cgggaatatc ggcaaatggg tgagactgag cttaaagttaa tctgttggtga 420  
cattctggat gtactggaca aacacctcat tccagcagct aacactggcg agtccaaggt 480  
tttctattat aaaaatgaaag gggactacca caggtatctg gcagaatttg ccacaggaaa 540  
cgacaggaag gaggctgcgg agaacagcct agtggccttat aaagctgcta gtgatattgc 600  
aatgacagaa cttccaccaaa cgcctcctat tcgcttaggt cttgctctca atttttccgt 660  
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tatcatgcag ttgttacgtg ataattctgac actatggact tcagacatgc aggggtgacgg 840  
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tacatagagg ctttttccagc attactgtgt cgtctccgtg ccagatgtgg caagatcacc 1200  
attagcaaat ggaaattaca tttgaaagcc attagactta taggtgatgc aagcatctaa 1260  
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gcatgcctgt tcaattcttt tgtttctttt ccttccccct cccctacct ccttccccctc 1620  
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tttggtactac tggatatctg actggagcca cagatacaga atctgtattg ttcttactga 1740  
aacacagcat ggaattaaca ttaaaacttaa ataaaacaaa cctaaattaa aaaaaaaaaa 1800  
aaaaaaaaac amggggnggg cccggtaccc attsccccta aagggggngg 1850

<210> 411  
<211> 661  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (518)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (567)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (568)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (648)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (660)

<223> n equals a,t,g, or c

<400> 411

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gtcccggtggt tgactctgag gatctgcccc tgaaacatct cccgagaaat gctccagcag 120
agcaaaatct tgtaaagtca ttcgcaaaaa cattgttaag aagtgccttg agctcttctc 180
tgagctggca gaagacaagg agaattacaa gaaattctat gaggcattct ctaaaaatct 240
caagcttgga atccacgaag actccactaa ccgccgccgc ctgtctgagc tgctgcgcta 300
tcatacctcc cagtctggag atgagatgac atctctgtca gagtatgttt ctcgcatgaa 360
ggagacacag aagtccatct attacatcac tggtgagagc aaagagcagg tggccaactc 420
agcttttgtg garcagagtgc ggaaacgggg cttcsaagtg gtwtatatga mcgarcccat 480
tgacrartwc tgtgtgcagc arctcmagga atttgawngg aararmctgg tcycagttac 540
caaggaggtc tggarctgcc tgaggtnnag gagagaagaa gaagatggaa gagagcaagg 600
caagtttaga ccttgacgct ctgaagaatc ttagttaaag ttagaagngc atcccatagn 660
t 661
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<210> 412

<211> 1263

<212> DNA

<213> Homo sapiens

<400> 412

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tctcagttca taggctatcc catcaccctt tatttgagga aggaacgaga gaaggaaatt 180
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aagagcctca ctaatgactg ggaagaccac ttggcagtca agcacttttc tgtagaagggt 480
cagttggaat tcagggcatt gctattttatt cctcgtcggg ctccctttga cctttttgag 540
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aacaagaaga aaaagaacaa catcaaactc tatgtccgcc gtgtgttcat catggacagc 600
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gag                                     1263

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&lt;210&gt; 413

&lt;211&gt; 1337

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 413

```

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gaattgctca gccttgccag cagcaatcat ttggggaaga atctacagtt gctgatggac 780
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cccattcccc ccttttg                                     1337

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&lt;210&gt; 414

&lt;211&gt; 792

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature



<222> (744)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (783)

<223> n equals a,t,g, or c

<400> 414

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aagctactaa ccagagccgg ctctttctcg agattttatt ccctcaaagt tgccccaaa 180
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aagttaccaa atggcttggt gattgcttct ttggaaaact attctcctgt atcaagaatt 300
ggtttgttca ttaaagcagg cagtagatat gaggacttca gcaatttagg aaccacccat 360
ttgctgcgtc ttacatccag tctgacgaca aaaggagctt catctttcaa gataacccgt 420
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acagcaccag aatttcgtcg ttgggaagta gctgaccttc agcctcagct aaagattgac 600
aaagctgtgg cttttcagaa tccgcagact catgtcattg aaaatttgca tgcagcagct 660
taccggaatg ctttggtctaa tcccttgkat tgtcctgact ataggattgg aaaagtgaca 720
tcagaggagg taccaakraa actntaaaga aattggcgct agaatacttg gagcaatggc 780
agnatcaata ga 792
```

<210> 415

<211> 1342

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1036)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1038)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1099)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1181)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1224)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1246)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1255)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1338)  
<223> n equals a,t,g, or c

<400> 415  
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cccgccctcct tccccgccca gcgaagctct ctgaccaccc ctcttttcta gagttctgcc 120  
tcgcttcccg gcgcggctgc agccctcagc ccacttagga taatggcgac agctgaggta 180  
ctgaacattg gtaaaaaatt atatgagggt aaaacaaaag aagtctacga attgttagac 240  
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attgcaccgc agtgtgaaat gattccaatt gaatgggttt gcagaagaat agcaactggg 480  
tcttttctca aaagaaatcc tgggtgtcaag gaaggatata agttttaccc acctaaagt 540  
gagttgtttt tcaaggatga tgccaataat gaccacagc ggtctgagga acagctgatt 600  
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ctgggttgata tgaagattga atttggtgtt gatgtaacca ccaaagaaat tgttcttgct 780  
gatgttattg acaatgattc ctggagactc tggccatcag gagatcgaag ccaacagaaa 840  
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accagatgaa actcctgang atttaaagcc tgagtatgaa aggggatggc cattcctacc 1140  
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ttcaaccctg accttttnc ag 1342

<210> 416  
<211> 1113  
<212> DNA  
<213> Homo sapiens

<400> 416  
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tgagaacatt cgcaagctca ccgggcgggg tccgaatgac gtgaggccca tccaagccag 180  
attgctggcc ctttctggtc ctggtggagg tagaggacgt ggtagtttat tactgaggcg 240  
tggtattctca gatagtggag gaggaccccc agccaaacag agagaccttg aaggggcagt 300  
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cacacgtaga gaccttatcc aggatcaaaa tatggatgaa aagggaaagc aaaggaaccg 480  
gcgaatattt ggcttgttga tgggtaccct tcaaaaattt aaacaagaat ccactgttgc 540  
tactgaaagg caaaagcggc gccaggaaat tgaacaaaaa cttgaagtgc aggcagaaga 600  
agagagaaag caggttgaaa atgaaaggag agaactgttt gaagagaggc gtgctaaaca 660  
gacagaactg cggcttttgg aacagaaaagt tgagcttgcg cagctgcaag aagaatggaa 720  
tgaacataat gccaaaataa ttaaatatat aagaactaag acaaagcccc atttgtttta 780  
tattcctgga agaattgtgc cagctaccca aaaactaata gaagagtcac agagaaaaat 840  
gaacgcttta tttgaaggta gacgcatcga atttgcagaa caaataaata aaatggaggc 900  
taggcctaga agacaatcaa tgaaggaaaa agagcatcag gtggtgcgta atgaagaaca 960  
gaaggcggaa caagaagagg gtaagggtggc tcagcgagag gaagagttgg aggagacagg 1020  
taatcagcac aatgatgtag aaaagaaaaga aaagaaagga aaggaagaaa agaaggaaag 1080  
aaagaaaaga aaagaaagga aagaaaagaa aac 1113

<210> 417

<211> 1174

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<400> 417

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gtagtaagca ttaataatgt ctttcatctt tgagtggatc tacaatggct tcagcagtgt 180  
gctccagttc ctaggactgt acaagaaatc tggaaaactt gtattcttag gtttggataa 240  
tgcaggcaaa accactcttc ttcacatgct caaagatgac agattggggc aacatgttcc 300  
aacactacat ccgacatcag aagagctaac aattgctgga atgaccttta caacttttga 360  
tcttggtggg cagcagcaag cagctcgctt ttggaaaaat tatctcccag caattaatgg 420  
gattgtcttt ctggtggact gtgcagatca ttctgcctc gtggaatcca aagttgagct 480  
taatgcttta atgactgatg aaacaatatc caatgtgcca atccttatct tgggtaacaa 540  
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graaaacacg tctcaccact gtggttgatt caaaagaaag tgattctatt ttttaaagaa 1080  
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<210> 418

<211> 673

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (213)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (506)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (586)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (661)

<223> n equals a,t,g, or c

<400> 418

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ctcagccccg cggacgcatg tccccttgcc gagttgaggg cagctggcct agagcctgtg 180  
ggacactatg aagaggtgtt ccaggtgcga aangtgcaag gcaccaactt gggcaaaata 240  
tatgccatga aagtcctaag gaaggccaaa attgtgcgca atgccaagga cacagcacac 300  
acacgggctg agcgggaacat tctagagtca gtgaagcacc cttttattgt ggaactggcc 360  
tatgccttcc agactggttg caaamtctac ctcatccttg agtgcctcag tgggtggcgag 420  
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ctcaagcccc aggaacatca tggttcagca gccaggggccc acatcnaaac tgaccgactt 600  
ttggactttt ggcaaggngt tttattccat ggggggcgcc cttcaattga caactttttg 660  
ngggcaacca ttg 673

<210> 419

<211> 2178

<212> DNA

<213> Homo sapiens

<400> 419

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aagggagaga gtgggagttt cccagccgcg agaactttcg aagttgagaa ragaaccctt 180
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caaaccacct tttatgtttt attatttttg aattcatgga gccatcataa aaatattttt 1860
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agcatattta tgaacatatt tcttaataag aaaaatatcc attttattac cattttctat 2100
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gaaaaaaaaa aaaaaaaaaa 2178
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<210> 420

<211> 1884

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (56)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (283)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 420

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tccccatggg ggggtgttct tccagactcc gccaaactgtg aattgccttt gttaacccccg 120
tgcagcaagg ctgtgatgag tcaagcctta aaagctacct tcagtggctt caaaaaggaa 180
cagcggcgcc tgggcatttc aaagaacccc tggctgtgga gtgagcaaca ggtatgccag 240
tggcttctct gggccacca tgaagttcagt ctggtgaacg tgnaatctgc agaggttcgg 300
catgaatggc cagatgctgt gtaaccttgg caaggaacgc tttctggagc tggcacctga 360
ctttgtgggt gacattctct gggaacatct ggagcaaatg atcaaagaaa accaagaaaa 420
gacagaagat caatatgaag aaaattcaca cctcacctcc gttcctcatt ggattaacag 480
caatacatga ggttttggca cagagcaggc gccctatgga atgcagacac agaattaccc 540
caaaggcgcc ctcttgga gcatgtgtcc ggccctccaca cccagcgtac tcagctctga 600
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catgtcattht agaagttagt ttgkatatat tattataatc ttataattgt tctmagaatc 1800
ccttaacagt tgtatttaac agaaattgta tattgtaatt taaaataatt atataactgt 1860
atttgaaata agaaaaaaaa aaaa 1884
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&lt;210&gt; 421

&lt;211&gt; 622

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 421

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ccatgcctgc ttgtgcctta ggcccgctag ccgcccctct cctcctcagc ctgctgctgt 120
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agtgtgcag cgcgggctgt gccaccttct gctctctgcc caatgataag gagggttcct 300
gccccaggt gaacattaac tttcccagc tcggcctctg tcgggaccag tgccaggtgg 360
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acagccagtg tcctggccag atgaaatgct gccgcaatgg ctgtgggaag gtgtcctgtg 420  
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tgectggccc tgcactctgtg tccagccac ctgccctccc ctttttcggg actctgtatt 540  
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aaaaaaaaaa aaacttgggg gg 622

<210> 422

<211> 1285

<212> DNA

<213> Homo sapiens

<400> 422

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<210> 423

<211> 528

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (442)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (485)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (489)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (510)  
<223> n equals a,t,g, or c

<400> 423  
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<210> 424  
<211> 3118  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (388)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (485)  
<223> n equals a,t,g, or c

<400> 424  
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acggccctag ctttggaag ccagaggaca cccctggctc ctgccgacac cgccctcctt 180  
cccttcccag cgcgggcct cgtcgggtgc taggctactc tgccgggagg cggcgccggc 240  
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ggccgagaga gctcggtgcc cgcccttccg ctgcctttt tcgtcagctg gctggagcag 360  
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agtgttttta taatacaata taattgttaa aggcaagggt tgactctttg ttttattttg 3000  
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&lt;210&gt; 425

&lt;211&gt; 1410

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 425

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ctaaatttta cctcatttat taatctggtc attaaggaat atatttaata atattatgta 180  
attattcttt ttatgcatga tacacctaga aaaatgcctt ttgtttctat tgatggcttt 240  
gttggttgga gctacttttg attacttatt gcagtttccc aatttagtct ttactttatc 300  
taactcacia agtaaaatta actgatcaca tggcaactac tgtatttaaa tagttctgga 360  
aaaatgaaag tgctttttgc tgcttggtaa atgggtaatg cccttgattc cttgactgta 420

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ataatcatcc tcaaagcctg tttttattac atgatgtgga ctgattattt tttctatcac 600
agtgttaaca gatggatttt attgtaaata caaagaaaac atattgatta ttgtagtatt 660
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cattgattc- ttccttttgc taattttttt ttttgtaaat ggtagctgcg acttttaggtg 1020
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caagaagaca agcatctgtg gtgcggaggc aagcaggcta actaggagtt gacaagctaa 1260
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ggagaaacc- aaaaaaaaaa ttttttaaaa 1410

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<210> 426

<211> 1422

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (328)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (479)

<223> n equals a,t,g, or c

<400> 426

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agaagcatga gcctttctga ctgtctacat gttcttgccc agttttaact tctagtcagt 120
gcgaatgatc gcaggagagc acagactgga ccctgctacg atctctcttg gagtggatca 180
gactgatgat caccaacaac caactcattc ccggataagg aagaagagag tgtcacctac 240
ttcagtgtgg tttcaaccct acttctgcat cttaaagaca ctgtatgggt tcagcagtag 300
tgccctgttt cattagtccc cctgatgntt tcattcctca tctcatcttt ttcttagcag 360
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ccttttcatc ttgcagatct gaaactctac ccattaaacr acttcccatc ttcccatccc 660
cacagctcct agcaaccaac attctacttt ctctatcagt ttgactactc taggtacctc 720
atatgagtag aatcatacag cattttatcct tctctgcctg gcttatttca cttgtataat 780
gtccycaagg ttcattcatg ttgtagcatg catcagaact tcctccctt ttaaaggctg 840
gataatatat catgggtatg ttagatcaca ttctgtttat ccattcatcc atcagtgaac 900
acttgtgtct cttccaactt tgggctgttg ggtgtcctgc cactgttgct cctagtgtct 960
aatctcgrrt attcctcctt aatcaagtgt acaacgttgg aactgtgca ggatgatgcc 1020

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cataaacatg tacttaccta agtcctgtcc tttggcaaata tatgggctat gagacacagc 1200  
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<210> 427

<211> 830

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (686)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (772)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (809)

<223> n equals a,t,g, or c

<400> 427

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aagagatacc aagtgaatt tagaagacga cgagagggtta aaactgatta ttatgctcgg 180  
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accactggca ataaagtgtt tgggtgccctg aarggagctg tggatggagg cttgkctatc 600  
cctyacagta ccaaacgatt ccctggktat gawtctgaaa gcaaggaatt taatgcagaa 660  
gtacatcgga agcacatgat gggccnagaa tgggtgcaga ttacatgcgc tacttaatgg 720  
gaagaagatg aagatgctta ccaggaacag gttctyttca atwccttaaa gnacagcgta 780  
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<210> 428

<211> 1622

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (76)

<223> n equals a,t,g, or c

<400> 428

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gttttgacat ggtacctatc ctttcttccc ttttcaaaag attcgctata gagtctttct 180
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aagtgcctcc gtgaggagat tcacaaggac ctgctagtga ctggcgcgta cgagatctcc 480
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atgacatgtt tgaagtgtgt tttgagagca agggaaacagg gcggatacct gaccaactcg 660
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aa 1622
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<210> 429

<211> 548

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (48)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (385)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (453)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (512)

<223> n equals a,t,g, or c

<400> 429

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attaaaccga ttgtgtttca aatcccagtt atnacatctg ttaactttgc aaactcaca 480
aaattatttg aaattatctg agttttcatt tntcacctt ccagaatggg gataatgcct 540
cctgcac 548
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<210> 430

<211> 569

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (381)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (553)

<223> n equals a,t,g, or c

<400> 430

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gccgcatgtt cctgcgcttc tactcagata actcgggtcca gcgaaagggc ttccaggcct 120
cccacgccac agagtgcggg ggccaggtag gggcagacgt gaagaccaag gacctttact 180
cccacgcca gtttgccgac aacaactacc ctgggggtgt ggactgtgag tgggtcattg 240
tggctgagga aggtacggc gtggagctcg tgttcagac ctttgagggt gaggaggaga 300
ccgactgcgg ctatgactac atggagctct tcgacggcta cgacagcaca gccccaggc 360
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tragtcactc gatacccat accaaaaaag gtttccacct gcgatacacc agcaccaagt 480
tccaggacac acttcacagc aggaaatgac cactggcttr acaagggccg ggactggamc 540
ctgktgcctt tgnccgctaa actggataa 569
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<210> 431

<211> 549

<212> DNA

<213> Homo sapiens

<220>  
<221> misc feature  
<222> (519)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (541)  
<223> n equals a,t,g, or c

<400> 431  
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tggcagagct cccactatct gcaatggatt ttggataaac aagatctgtt gaaggagcgc 300  
caaaaggatt taaagtttct ctcaaggaa gaattattga agttacaaat attttttaca 360  
aatgttatcc aagcattagg tgaacatctt aaattaagac aacaagttat tgccactgct 420  
acggtatatt tcaagagatt ctatgccagg tattctctga aaagtataga tcctgtatta 480  
atggctccta catgtgtgtt tttggcatcc aaagtagang gaaaaaaaaat tttttttttt 540  
ngggggggg 549

<210> 432  
<211> 1221  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1160)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1183)  
<223> n equals a,t,g, or c

<400> 432  
cgcaactccc ctctgctggg cgcgcgggtg acggtctgaa agggagtgtt cgggtttcgc 60  
tggggcctcg cggtccaga gccagcatg gcttcctcgc gagcctctc cacggcaacc 120  
aaaactaaag caccgcagca cttagtgtg cgggtcgtga agaaaccaca catctattat 180  
ggaagtgttg aagagaagga gagggagcgt ctggccaaag gagagtctgg gattttgggg 240  
aaagacggac ttaaagcagg gatcgaagct ggaaatatta atataacctc tggagaagt 300  
tttgaaattg aagagcatat cagcagcga caggcagaag tattggctga gtttgagaga 360  
aggaagcgag ccgggcagat caatgtttcc acagatgact cagagggtcaa agcttgccct 420  
agagccttgg gggaacccat cacacttttt ggagagggtc ctgctgaaag aagagaaagg 480  
ttaagaaata tcctctcagt gtctgggtact gatgccttga aaaagaccaa aaaggatgat 540  
gagaagtcta aaaagtccaa agaagagtat cagcaaacct ggtatcatga aggaccaa 600  
agcttgaagg tggcaagact atggattgct aattattcgt tgcccagggc aatgaaacgc 660  
ttggaagagg ccgcactcca taaggagatt cctgagacaa caaggacctc ccagatgcaa 720  
gagctgcaca agtctctccg gtctttgaat aatttttgca gtcagattgg ggatgatcgg 780

cctatctcct actgtcactt tagteccaat tccaagatgc tggccacagc ttgttggagt 840  
gggctttgca agctctggtc tgttcctgat tgcaacctcc ttcacactct tcgagggcat 900  
aacacaaatg taggagcaat tgtattccat cccaaatcca ctgtctcctt ggacccaaaa 960  
gatgtcaacc tggcctcttg tgcggctgat ggctctgtga agctttggag tctcgacagg 1020  
tgaatatcac tgttctgtgg cccatactgc catcactaaa gtagatgttt gattgggttg 1080  
tccccaggac ctcagtaaaa atctggcatt agggccatgc gcatgggctc acaccttaag 1140  
ggctgaaggc aggagaattn gcttaaaccg ggggaaatgg gangttgttg tgagccgaga 1200  
ttgcacactg cactcccagc t 1221

<210> 433

<211> 1115

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (45)

<223> n equals a,t,g, or c

<400> 433

ggcacacatc accaagccca gccaaatttt gttttttttt tgtanagatg gggtttcatc 60  
acgttkccca ggctgatctc gaacctctgg gctcaagcaa ttcactcgcc tcggcctccc 120  
aaaatgctgg gattacaggc ctgagccact gcgccagcc aggatttgaa ttattttaac 180  
tcatccatgg gctgccctag aatgtcacia atgaggggtg tttaatgcct ttcttatagc 240  
tgctactgga acactattat gacctaatat atgagccatc ctactcatc tacaagtgtc 300  
gaagcaatgt tacatacttt ttgctaaac tcagattttt tagcctaatt tcttgtcctc 360  
ctatccacct gcacccacac atggcctgca tggggctgcc ttccctgcag tgttctgcag 420  
ccatgcttca gggatatagc gttggtggac agcctcaggt cttgggggca ctatagccac 480  
taaagcaggt gtgaaaggct caagaggatg accagcaatt aattatcccc agaaagtga 540  
ggaaaagaga cctttaggga tgttgctggg caagtcttga tttgaccgga gtcaaatcaa 600  
tcttcaagca atcttggaat cctcaactgc agtaagcatt tcaaaatgca aacaaactgc 660  
ttaacaactg acaagacacc agccatacgc ctgctcttcc aacagtgggt tctagctttg 720  
aacaaaagtg ctaaacattt ccttgaatat attcttctc tttttgtcct catcactcaa 780  
tactggtgct cttgtcacag gtagaacagc ttgtttcttt tccatctatt caagtgtgtt 840  
tctaattcta aaatgctgat cttctctgga gtctatggta ggcaattatg gtcactggaa 900  
tagtttgtct tgttttmaaa tattattggg gcatgtacaa cagcatccaa catatctgtc 960  
ttgttcctag atatatagct ctgatttttag gccttttgtg cataccatta caatatggtg 1020  
gggtaagaca ttctacagta gcctgtgctg aactgatctc ttaaataaac ttgcttctgg 1080  
ttaactaaaa aaaaaaaaaa agggcggygc ctcta 1115

<210> 434

<211> 1604

<212> DNA

<213> Homo sapiens

<400> 434

ctgctgctac tctgtttctt tcctcacttt gctttccaag gtggatatgtg atccccagct 60  
caggcctgtg cagacaggaa attctccctt gcagcaagta ggggaagtgg gttgtgggat 120  
gtgacctcct tccagatata aggcagttag tgtaaacctg ccacctccag cctgatcca 180  
ttctcaccta gcggctacag gaagctgtgt ctgttcgatt tgggtggagg agatgtgcag 240  
ggagctgtat cttgtcctcc gcttgtgaaa aactcaagga tgtggagaag agtagaccgt 300

```

ggaaccctgc tcttctgcag ccaagctgag gggcaggatg cgtgtgggac agtggtagag 360
aagcagggga tagactcata ggctgcaaca aaggtgactc tgtccctgga cactgcctcc 420
gtactttctc cttgcttcac tggccacagc atctccctcc agccctcgct atgtgcctct 480
gccatcttca cccatcatgg agcagagggt aggagaggca gcctgggaat atggagacca 540
gtgaaggacc aggcctggag agcacagggt cctacctggg catccagcag aggagccct 600
aaaggccagg agcaccctaa gaggaggagg ggcagccagc ctccattgac ggcgagcctc 660
cagccctctc ctactttgat caccatttct ctccaggctt tctgcctccg agatgtggca 720
ccatagtgcg gtgccctgtg gcttcaccgc cctacttcca cctccgcca gcctgtaatg 780
tttatataag cagcctcaag gaccaagaac catctgcgaa aggacacaca caggaaattc 840
ataaaagaaa tctgaatgga taaaaccatg aaaaaagta tgcttcatta gtaattaaag 900
aaaggcaaat agagctggaa gcatttttcc ctagcaaac cataacagaa aaaaataaga 960
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catcggtgca ggcttcctgg atgacagttg ggtgatatgt gtcattgtggc ctaaaagcct 1080
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gtttggttgg gaattttatt cttttctgct gtaacgaaag tttgcaatag gggattgctt 1260
aagtaaatta ttgtatctcc atccagatgg tggagtaccg cgcagacatt aaaagtcatt 1320
taaaagaaca tctgactgaa agaaaaatgc tccttgaata ttaaaagggt gtaaaaatag 1380
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agcagataaa aaagacggaa ggcatactaa aaaaatgttg gtggttatct ttgtatggtg 1500
gaacaaagtc actgtaattt tcatctttgg tttttctgta atttccaaat tttccacatt 1560
ttgtatttca tataataaat ataatttaag aaaaaaaaaa aaaa 1604

```

&lt;210&gt; 435

&lt;211&gt; 301

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (274)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (277)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 435

```

gaggcgggtga acgagcagct ttctagcgag cgcagcaacc tggccaggt gatccgccag 60
gagttcgagg accggctggc agcctctgag gaggagacgc ggcaggccaa ggccgagctg 120
gccacgctgc aggcccgcca gcagctggag ctggaggagg tgcaccggag ggtgaagaca 180
gccctcgcga ggaaggagga ggccgtgagc agcctccgga cacaacatga ggtgagtcct 240
tgtggccagc cctgctggac ctgggggctg ggancangcc tgaccctgtg ggtgtgctgc 300
a 301

```

&lt;210&gt; 436

&lt;211&gt; 318

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



<220>

<221> misc feature

<222> (242)

<223> n equals a,t,g, or c

<400> 436

```
aattcggcac gaggaaaccc ttagtcctgg ccatttcaaa agcatcacac agaagaagac 60
cttgatatatt acatttaagt cacatatgca gctactgaca cttactagtg ctgttatagt 120
cctggctatt attccatgag gtcgtcacat tttaaccttt tgcataagcc tccaacggcc 180
tgatggaatg atgaagcctc agaacagttt ctacacaatg gctaagggat gtacccattt 240
tnaattttcc tcttttctgt gatcacagag ggtgaatacg ctttggccgg atacacagaa 300
gtgaaaactg tcacccat                                     318
```

<210> 437

<211> 1882

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1793)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1795)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1818)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1826)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1844)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1855)

<223> n equals a,t,g, or c

<400> 437

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tagcccgtcg ggagcgccag gccggccagg cctgcgcgcy cgccgccgcc gccgtcgccg 60
ccgcgccgac catgtcgmag ccaaggagaa cccgtgcagg aaattccagg ccaacatctt 120
```

caacaagagc aagtgtcaga actgcttcaa gccccgcgag tcgcatctgc tcaacgacga 180  
ggacctgacg caggcaaaac ccatttatgg cggttggctg ctccctggctc cagatgggac 240  
cgactttgac aaccagtgac accggtctcg gaaatggcag cgacggttct tcatccttta 300  
cgagcacggs ctcttgcgct acgcccctgga tgagatgccc acgacccttc ctcagggcac 360  
catcaacatg aaccagtgca cagatgtggt ggatggggag ggccgcacgg gccagaagtt 420  
ctccctgtgt attctgacgc ctgagaagga gcatttcac cgggcggaga ccaaggagat 480  
cgtcartggg tggctggaga tgctcatggt ctatccccgg accaacaagc agaatcagaa 540  
gaagaaacgg aaagtggagc cccccacacc acaggagcct gggcctgcca agtggctgtt 600  
accagcagca gcagcagcag cagcagcagc agcagcatcc ccagtgtga gaaagtcccc 660  
accaccaagt ccacactctg gcaggaagaa atgaggacca aggaccagcc agatggcagc 720  
agctgagtcc agctcagagt cccagccaga gccagcctcc tgctgccagc ytctgcggga 780  
actgggctag agagcaaaga agaggagagc gccatgagta gcgaccgat ggactgtggc 840  
cgcaaagtcc gggctggagag cggctacttc tctctggaga agaccaaaca ggacttgaag 900  
gctgaagaac agcagctgcc cccgcgcgtc tccccccca gccccagcac ccccaaccac 960  
aggaggtccc aggtgattga aaagtttgag gccttggaca ttgagaaggc agagcacatg 1020  
gagaccaatg cagtggggcc ctcaccatcc agcgacacac gccagggccg cagcgagaag 1080  
agggcgttcc ctaggaagcg ggacttcacc aatgaagccc cccagctcc tctccagac 1140  
gcctcggctt cccccctgtc tccacaccca agagccaagt cactggacag gaggtccacg 1200  
gagccctccg tgacgcccga cctgctgaat ttcaagaaag gctggctgac taagcagtat 1260  
gaggacggcc agtggaaaga aactggttt gtccctcgccg atcaaagcct gagatactac 1320  
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tacgatgtca cagagtatcc agttcagaga aactatggct tccagataca taaaaaggag 1440  
ggcgagttta ccctgtcggc catgacatct gggattcggc ggaactggat ccagaccatc 1500  
atgaagcacg tgcacccgac cactgccccg gatgtgacca gctcgttgcc agaggaaaaa 1560  
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gctgggggag ccggaccctg agcagaagag gagccgcgca cgggagcgga ggcagagggc 1680  
cgctccaaga cctttgactg ggctgagttc cgtcccatcc agcaggccct ggctcaggag 1740  
cgggtgggag gcgtggggcc tgctgacacc cagcagcccc tgcgccctga ggnngnactg 1800  
gggaagctgg agcgggancg tgcacngaag cgggaggagc gccncaagcg cttcnggatg 1860  
ctcgacgcca cagaacgggc ca 1882

<210> 438

<211> 2056

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2046)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2053)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2054)

<223> n equals a,t,g, or c

&lt;400&gt; 438

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gattcagctt aaccctgat cttcttaagt taaagggtact tttgttttat aaaagctcta 60
gataaaactt tcttttctga tcatgaatca agtatctgtg gtttcatgcc cctctctata 120
cctttc aaag aactcctgaa gcaacttaac tcatcatttc agcctctgag tagaggtaaa 180
acctatgtgt acttctgttt atgatccata ttgatattta tgacatgaac acagaatagt 240
accttacatt tgctaaacag acagttaata tcaaactcctt tcaatattct gggaacccag 300
ggaagttttt aaaaatgtca ttactttcaa aggaacagaa gtagttaacc aaactaaca 360
gcaaaacctg aggtttacct agtgacacca aattatcggt attttaactg aatttacc 420
ttgactaaga atgaaccaga tttgggtggtg gttttgtttc tatgcaaact ggacacaaat 480
tacaacagta aattttttta taagtgtctc tcccttctcc atgatgtgac ttccggagat 540
aaaggattca aaagataaag acaaagtacg ctgagagttg ttaaccagaa agtcctggct 600
gtggttgcag aaacactgtt ggaagaaaag agatgactaa gtcaagtgtc tgccttatca 660
aaagagcaaa aatgcctctg gttttgtgtt tgggagaaaa atatcttgga cgactgttt 720
tccttgataa aagtcattct ctctactgtg tgaaatgaat acttggaatt ctaattgttt 780
tgtgtgccag gggcagtaat gtccctgcct cttctcccaa tcaaggttga ggagtggggc 840
tgaggagagg acttaactga cttaagaagt agggaaaaca aaaacctctc tcctcagcct 900
tccacctcca agagaggagg aaaaacagtt gtctgtgtc tgtaattcag tttgcgtgta 960
ttttatgtc atgcaccaac ccatacagag taaatctttt atcaactata tactgggtgt 1020
taatagagaa tgattgtctt ccgagttttt tggttccttt tttactgtg ttaaagtact 1080
tgaaatgtat tgactgtctg ctatatttta aaaacaaaat gaaataattt gagttgtatt 1140
acagaggttg acattgttca gggatgggac aaagccttct tcaatccttt tcatactact 1200
taatgatttt ggtgcaggaa cctgagattt tctgatttat atttcatgat atttcacatt 1260
tgctcttcac agcatgagca tgaagccag tggcaccaaa tggctgggta caatcaagt 1320
atattttgta gcacctcact atctgaaagg ccagatgatt tcagatgatt tcattgagct 1380
tcattgcagc ctgaaatttt aaaaaagttg tgtaatacgc caaccagtca agttgtgttt 1440
tggccagaga tttagatatg tccaatttcc tggctcattt cattgtgtc tatgggtacg 1500
tataaaaagc aagaattctg tttcctaggc aaacattgca actcagggt aaagtcattc 1560
agtgaactt ttagagccag aagtaacttt gtcccagtc tacaatgtga aaagagtga 1620
tagttgcctc tttttagcca ttttcatggc tggtagatat tcgtacgcat tacttttcag 1680
aatcaatagc cactttcaga tattcttatt tttattctct taagtcttta ttaactttgg 1740
agagagaaat gatgcatctt tttattttta atgaagtaga tcaacatggt ggaacaaaat 1800
gataaagaac agaaaaatt tcaatatatt actaataact tttccaata taaatcctaa 1860
aattcctata acatagtatt ttacagtttt atgaagcttt ctattgtgac ttttatggaa 1920
ttaagagatg aagaagatga gatatttttag catttatatt tttcaaaatt atatgtatac 1980
ttaaaaaata agtaacttta tgcatttaaa aaaaaaaaaa agggsgggcc gtttttagag 2040
atccangttt acnncc 2056
```

&lt;210&gt; 439

&lt;211&gt; 721

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (688)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 439

```
ggcggcgcg ragggtcgga gctcggagct gctgcttctg gttctcttgt ggccgcccgtc 60
gctgtccggc tgccttgggc tgccgaacag acaaggcgtg ggccacagca cctcagaagc 120
cgacgcagct cgacgcaggg gccggcagga ggggtgggcga tcgcgtgtcg gagggcgccc 180
```

```

cgcgggcagg cgggcgggcg ccagaggggg aaagaggcgg gggcggcggg tcagccgctg 240
gccgggcccgg ccgggggaatg tcgatgcctg acgcgatgcc gctgcccggg gtcggggagg 300
agctgaagca ggccaaggag atcgaggacg ccgagaagta ctccctcatg gccaccgtca 360
ccaaggcgcc caagaagcaa atccagtttg ctgatgacat gcaggagttc accaaattcc 420
ccacaaaaac tggccgaaga tctttgtctc gctcgatctc acagtccctc actgacagct 480
acagttcagc tgcatactac acagatagct ctgatgatga ggtttctccc cgagagaagc 540
agcaaaccac ctccaagggc agcagcaatt tctgtgtgaa gaacatcaag caggcagaat 600
ttggacgccg ggagattgag attgcagagc aagacatgtc tgctctgatt tcaactcagga 660
aacgtgctca gggggaraag cccttggnrtg gtgstaaat akkgggyttg acacattaca 720
g 721

```

```

<210> 440
<211> 1041
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (1025)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1030)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (1039)
<223> n equals a,t,g, or c

```

```

<400> 440
ctcgtgcgcg gacattgtca gctgcgtttc cgcggtcgcg gttgaggagc tcaagcttgg 60
gaaaatgggtg tgcattcctt gtatcgatcat tccagttctg ctctggatct acaaaaaaatt 120
cctggagcca tatatatacc ctctggtttc ccccttcggt agtcgtatat ggcctaagaa 180
agcaatacaa gaatccaatg atacaaacaa aggcaaagta aactttaagg gtgcagacat 240
gaatggatta ccaacaaaag gaccaacaga aatctgtgat aaaaagaaag actaaagaaa 300
ttttcctaaa ggaccccatc atttaaaaaa tggacctgat aatatgaagc atcttccttg 360
taattgtctc tgaccttttt atctgagacc ggaattcagg ataggagtct agatatttac 420
ctgatactaa tcaggaaata tatgatatcc gtatttaaaa tgtagttagt tatatttaat 480
gacctcattc ctaagttcct ttttcgttaa tgtagctttc atttctgtta ttgctgtttg 540
aataatatga ttaaatagaa ggtttgtgcc agtagacatt atgttactaa atcagcactt 600
taaaatcttt ggttctctaa ttcatatgaa tttgctgttt gctctaattt ctttgggctc 660
ttctaatttg agtggagtag aattttgttg tgaaacagtc cagtgaactt gtgcagggaa 720
atgaaggtag aattttggga ggtaataatg atgtgaaaca taaagattta ataattactg 780
tccaacacag tggagcagct tgtccacaaa tatagtaatt actatttatt gctctaagga 840
agattaaaaa aagataggga aaagggggaa acttctttga aaaatgaaac atctgttaca 900
ttaatgtcta attataaaat tttaatcctt actgcatttc ttctgttcct acaaatgtat 960
taaacattca gtttaactgg taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaaancccn ggggggggnc c 1041

```

<210> 441  
<211> 1995  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1957)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1992)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1995)  
<223> n equals a,t,g, or c

<400> 441  
gcccacgcgt cgcgccacgc gtccgcagca tcaccatgtc tggttcgatac agctcaagca 60  
agcactactc ttccctccgc agtggaggag gaggaggagg aggaggatgt ggaggaggag 120  
gaggagtgtc atccctaaga atttctagca gcaaaggctc ccttggtgga ggatttagct 180  
cagggggggtt cagtgggtggc tcttttagcc gtgggagctc tgggtgggggc tgctttgggg 240  
gctcatcagg tggctatgga ggattaggag gttttggtgg aggtagcttt cgtggaagct 300  
atggaagtag cagctttggt gggagttagt gaggcagctt tggagggggc agtttcggag 360  
gtggcagctt tgggtgggggc agctttggtg gaggcggctt tgggtggaggc ggctttggag 420  
gaggcttttg tgggtggattt ggaggagatg gtggccttct ctctggaaat gaaaaagtaa 480  
ccatgcagaa tctgaatgac cgcctggctt cctacttggg caaagtccgg gctctggaag 540  
aatcaaaacta tgagctggaa ggcaaaatca aggagtggta tgaaaagcat ggcaactcac 600  
atcaggggga gcctcgtgac tacagcaaat actacaaaac catcgatgac cttaaaaatc 660  
agattctcaa cctaacaact gataatgcca acatcctgct tcagatcgac aatgccaggc 720  
tggcagctga tgacttcagg ctgaagtatg agaatgaggt agctctgcgc cagagcgtgg 780  
aggctgacat caacggcctg cgtagggtgc tggatgagct gaccctgacc aaggctgacc 840  
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gctgatcaaa tncan 1995

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&lt;210&gt; 442

&lt;211&gt; 1723

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 442

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ttttcagtggt taaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1723

```

&lt;210&gt; 443

&lt;211&gt; 1899

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (327)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1878)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 443

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aaaaaaaaaa aaaccccngg gggggcccg taccaattc 1899
```

&lt;210&gt; 444

&lt;211&gt; 430

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (395)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

<222> (413)

<223> n equals a,t,g, or c

<400> 444

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agactccatc ccacatactc cttttgaaac tgggtccagtg tacaacatcc agtgaagagt 180
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<210> 445

<211> 2153

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (166)

<223> n equals a,t,g, or c

<400> 445

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cttacacccg gtggtcaagt gtgtaataaa cttgagcatt cgaatgggag aaaaagcaaa 540
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<210> 446

<211> 492

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (305)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (474)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (475)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (489)

<223> n equals a,t,g, or c

<400> 446

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cgggncgact acgtgagtra ggagggtgtg taccgtgtgc tacagatcgt caccaaccgt 360
gatgacgtcc agggctatgc ccgcaagccc gtctcccgtc acctgtgtga gctgctggca 420
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ggacttgang ca 492
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<210> 447

<211> 1539

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (25)

<223> n equals a,t,g, or c

<400> 447

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<210> 448

<211> 3983

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (60)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (67)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (227)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (328)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1010)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3067)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (3255)

<223> n equals a,t,g, or c

<400> 448

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<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (298)  
<223> n equals a,t,g, or c

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<212> DNA  
<213> Homo sapiens

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<222> (2009)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
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<220>  
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<220>

<221> misc feature

<222> (2348)

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<220>

<221> misc feature

<222> (2375)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (2387)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2420)

<223> n equals a,t,g, or c

<400> 450

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<211> 2485

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

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<211> 963

<212> DNA

<213> Homo sapiens

<400> 452

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<211> 604

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature



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<220>  
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<212> DNA  
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&lt;210&gt; 455

&lt;211&gt; 1538

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 455

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atacactgga actctggggc aagasatgct tatggtagct gagccaaaca cgtaggattt 1440  
ccgtttttaag gttcacatgg aaaagggttat agctttgcct tgagattgac tcattaaaaat 1500  
cagagactgt aaaaaaaaaa aaaaaaaaaa gggcgggc 1538

<210> 456

<211> 2189

<212> DNA

<213> Homo sapiens

<220>

<221> misc. feature

<222> (17)

<223> n equals a,t,g, or c

<400> 456

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ttctttttat ttttccttaa atcttacttg tttctagcgt ctttaagagt gtaatggtaa 180  
aatgtgaagt tacaataaac ttctgcttgt tttctcagaa catctttggc atgaggaaga 240  
actttttgtg aatgatacag tagtctcagc atctgttaat ttgtgggtttt caaagcattt 300  
ttgacagagt ttacctaatg taaaaagatt aaacagtttt ataaaaacaca aataaacatt 360  
cctacctgaa ctgtgaggaa cagagtgtat agtacaaatg taattaggca ttgcctcctg 420  
gcgaggttct tgatgcatga cttcgatgct ggctgctgac tgaggtgacc actgtcagta 480  
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ctgtttttga gttggaaaaa ataaaagatg aggtattata agtatgccaa atattttatac 600  
actacaaaag attaaaaaag gagagggaga aaaaaaaagg ccagttatga ttttaatagc 660  
gtctaatttt tttttgactc gaattttgtg gacactagtc aattgcataa ttttaacatgg 720  
aggagctttc atttaaaaga agttctcagc tactatatctc tgccattaaa attaaccatg 780  
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cttaaatgac atgttaattg tatatcttac ctattttgtt tttatattat tcttacaata 1920  
taatcatgta tattaacaaa cagccctggg attctaattct tcctctgcaa ctgtcttcca 1980  
ggacttactg gcacttatta cactgtgata agtggcagaa aagtagaatg aaatattctt 2040

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tttccattag atttgttctt atgtgaccat gtaccaagcc agctataaaag tattgtattt 2100
ctgtagaata tggaaaatag tatttgcctt accttgccta aatgtttgca atttctaagt 2160
aaacctttta tctcctaaaa aaaaaaaaaa 2189

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```

<210> 457
<211> 1399
<212> DNA
<213> Homo sapiens

```

```

<400> 457
gcaccccgcc ttgtagtgac ctgtcggcac gtgtcccctc gggaagcagc cagggtcctg 60
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gagacatgtc cctatgacat agcagtgggtg agcctggagg aggacctgga tgatgtcccc 180
atccctgtgc ccgctgagca cttccatgaa ggcgaggctg tgagtgtggt gggctttggc 240
gtctttggcc agtcttgccg gccctcgggtg acctcaggca tcctttcggc tgtggtgcag 300
gtgaatggca cgcccgtaat gctgcagacc acgtgtgctg tgcacagcgg ctccagtggg 360
ggacccctct tctccaacca ctcaggaaac ctccttggca taatcaccag caacacccgg 420
gacaataata cggggggccac ctacccccac ctgaacttca gcattcccat cacgggtgctc 480
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cgcgtgctg agccagtcag ggtggtgtgg cggttgcagc ggccctggc agaggccccc 600
cggagcaagc tctgaggctg tgttaccacc tttggaaaga agagtgcct tttctgctg 660
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ccaggctgcc tctcatctcc acccactgac tgcagactgg gctttgggct ctggggcaaa 780
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cactccaact gcacagaagt tctgggcctg acaggtagat tccagctgga aggcaggccc 960
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aaaaaaaaaa aaaaaaaaaa 1399

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```

<210> 458
<211> 709
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

```

```

<400> 458
cacgagcggg cacgagattt aatgtttcca aggttagacg ttcacttttt gagacgnntg 60
agtagctttt cacttaattg actagcatgt atgggtttct ttaccaggt ccacaattca 120
ctacacaggt ccagaaaaaa agctgatctc tgaaaagcac taggagaagg cagctagaga 180
gggagaattc taattaggcc ggggtcctct gtggcttgaa tgactgaata agtttttata 240
gtcttcaatt cagtgacttc cagattcttc ccaaagaaat ttctagrgat caagagtagg 300

```

ctcttttcgga agtacttgcc cgtattacac ttttaatttta caaaccaaac aacagcaatt 360  
caaccaatca aacaacaaaa acaatccaaa gaaagagact tggacatagg catcaaggaa 420  
tcatttcact ttataattta atagaacact ggtgtatcat tcattaattc tgaaagtga 480  
aactaaatgt aaaataattt tgtaagggtt gtgaattgtt gcctaggat tctggtgatg 540  
tttacttttag tgattttatc attaatgaaa gcaatgtgtt tttttagaaa acatattatt 600  
aggggttcata acgttgacat tctgttggtg caatcataat ctctgtttt gttttagtcc 660  
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<210> 459

<211> 1283

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (86)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (145)

<223> n equals a,t,g, or c

<400> 459

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actgcatgct ggtaagcaac cgcgtntctc tgggtggggga gcacgctggc catgctgcag 120  
cgccttcaag gagcagcagt tcgtnatcgc cgggggtcttg gtggaggaca gcaacaacca 180  
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gcccttcaag caggtggccg agatgctgtc ggcctccagg taccacacca tcagcatggt 300  
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gcccagatc gacatgtttc tcaacgtggc cacttccctg gacccccgct acaagaggct 480  
gcccttcctc tccgccttcg agcggcagca ggtggagaat cgcgtgggtg aagaggccaa 540  
gggctgctgg acaagggtcaa agacggcggc taccggccgg ctgaggacaa gatcttccc 600  
gtgcccagag agcctcccgt caagaagctc atgcggacat ccacgcccgc gcccgccagc 660  
gtcatcaaca acatgctggc cgagatcttc tgccagacag gcggcgtgga ggaccaggaa 720  
gagtggcatg cccagggtgt ggaggagctg agcaacttca agtcccagaa ggtgcttggc 780  
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aagggtgctg agaagtactg gtgctgacg gccaccgct cgcacctgag cgtctcttcg 900  
gatccgccgc caacgtggtc agcgccaaga ggaaccggct ggctcccgcg cacgtggaac 960  
gagcaggtgt ttctgtatga raacgcccgg agtggggcag aggcggaacc cgaggaccag 1020  
gacgargggg artggggcct ggaccaggag caggtgttct ccttggggga tggcgtcasg 1080  
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ttttgaacct cagagaccat ccaactgtct tgacacctag aagggtgaaa aaggaaagag 1260  
attcgagaag tgagagaggg tcg 1283

<210> 460

<211> 435

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (431)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 460

```
tcgacccacg cgtccgcaag tacaaaaaacc ttaagtttca tttgtagggc cacagatcat 60
agaatttcaa atgacatatt acatagtttg taaatgtata tatttggttg actgaaactt 120
aatcataatt tagttcttaa aactatgtgg cttgaagtgg caagtagcaa gtactgattt 180
taccagattc aagttgattt ttaaaagtaa ccattggaga aatcgttata catttgtttg 240
caggattttt acctcctata actccaccag aaaagttttt tctttcccag ctgatgctgg 300
cacccccacg ggaactcttc aaaaagacgc ctcgccagat tgcaactgat gacgttgga 360
acatgggcca gtctgtggam attagtgggc tcagttagcc ttggccggta aggrggaayc 420
agtgtttggg nattc 435
```

&lt;210&gt; 461

&lt;211&gt; 654

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (138)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 461

```
gcgwccgagc ctttggagct cccagcgtcc cctcgggttc aatcctccag gacctgtgtc 60
tgatgcctgc atgtgggtac ctgggtccca tcaggttcta gatcggcctc cgccctccac 120
tttcagggtc ccaggccnag cttctcatgt ctgtggggag ggtctccaga gccttggtct 180
gtggctgagc tgtggaactt gaaggcctct ctgcatcttg tcaactcgtg cccctgcacc 240
ttgggtcatg acctgcttta tgtggcaacc ctgtgacagc tgctaagtcc tagaaaacac 300
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aggacgtgag gtgccctctg cgccgtgcgg gcgcgtgcgg ggagaccggg gccacatgcg 420
agcggggccc cgagacattc tgcactcggg aattgcgggg attatcaaat cccgcttcag 480
tgggaaacgt gagcgaaacc caaggtgagt ggccgcagcc ttctgtcacg tgctctcccg 540
catgtcctaa gtragggtc aggtgagct gccgttgccg agagccttgt gtctgcttcg 600
ggtgtctgca ctgtgagtgg ctccgtgctr gcgtccgcac cagccgcttg gggc 654
```

&lt;210&gt; 462

&lt;211&gt; 2245

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 462

```
aattacccgg tcgacccacg cgtccattgt cccaatgtgc ccggctcagc ctgaggaagc 60
agtcgtctct ccaggagcca ggtcccgatg tggaggccta gcgccgagga acagtgtctg 120
gcacccgcct ggcccgcag acccaccctg ccaacatcaa gttgttcctt ctgctccgga 180
gacccctggg gtgcggccct ggccccctcc acccctgctg ggccagagcg ggtgggcagt 240
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acctgggtgt gctgctgtga ggggtccttg cgtggccccc atccttcccc caatgcagaa 360
```

```
ctccatgggc agggagctgg ggggacatct cacctcccc atggcacaga gccctccaca 420
cccctggacc agggcatccg ggccttagaa attccacagc tcccgtcctg gccaccctgg 480
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tccccacct gcccttctg ggtgacacag ccggtaaacg gaatcacgta tgggtctttc 2040
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catgggtggt cccacagcat gggaccaggc tggcctgagg gatgccagc tgtaacaatg 2160
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aaaaaaaaaa aaaaaaaaaa aaaaa 2245
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<210> 463

<211> 1280

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1016)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1242)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1254)

<223> n equals a,t,g, or c

<400> 463

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<210> 464

<211> 2431

<212> DNA

<213> Homo sapiens

<400> 464

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2431

&lt;210&gt; 465

&lt;211&gt; 589

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 465

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acaaaaacag aggggtgagac agaagtgaag aaagatgagg ccggagaaaa ctattccaag 180  
gatcaagggtg gtcggacatt gtgtgggtgta atgaggattg gcctgggttg aaaaggcttg 240  
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cccacgctaa ctttgaagggt gatacttacc tcacctctaa ttagggacga attggagaag 480  
aaggatggag aaaaatgtttc gatgaaagat cctccggact tattggayag gcagaaatgc 540  
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&lt;210&gt; 466

&lt;211&gt; 1107

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature

<222> (1099)

<223> n equals a,t,g, or c

<400> 466

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ggacaccggc ggagcctccc cgcccccgcg gaagaaaccc cgccagcaac aatagcaaca 120
gcctgaatgt caataacggg gtccccggcg gggcgggcgc cgcatcctca gccaccgtcg 180
cagctgcctc cgccaccacc gccgcctcct ctctccttggc caccocagaa ctgggcagca 240
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ataaggcaga aaatgacctg aatgaactaa agcctttagt gcattctcct catgctattg 480
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gcaaagggac agcttcccga tctaaactat tggataaact tcagacctat ttaccaccat 780
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<210> 467

<211> 2197

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (846)

<223> n equals a,t,g, or c

<400> 467

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actcaaaatt gcaccaagac accttgtctc ccaaagtcaa aatgtgaaat acgcaatgga 180
attgaagcct gctattgcaa catgggattt tcaggaaatg gtgtcacaat ttgtgaagat 240
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gaaggaagtt attattgtat gtgtgtacct ggcttcagat ccagcagtaa ccaagacagg 360
tttatcacta atgatggrac cgtctgtata gaaaatgtgr atgcaaactg ccatttagat 420
aatgtctgta tagctgcaaa tattaataaaa actttaacaa aaatcagatc cataaaaagaa 480
cctgtggcctt tgctacaaga agtctataga aattctgtga cagatctttc accaacagat 540
ataattacat atatagaaat attagctgaa tcatcttcat tactaggtta caagaacaac 600
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aataattttg ttcaaaggga tacatttgta gtttgggaca agttatctgt gaatcatagg 720
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<210> 468

<211> 3611

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3574)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3581)

<223> n equals a,t,g, or c

<400> 468

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ttccccctaag ttcttagagg actgctttgc cttttgatct gagagttgca aagttccata 180  
aagaatggcc cttgtggata agcacaagt caagagacag cgattggaca gaatttgtga 240  
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ggggagacgc tgggcctcat tggettttgg cgcacggggc aggcggttgc agttcgagcc 780  
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&lt;210&gt; 469

<211> 520

<212> DNA

<213> Homo sapiens

<400> 469

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cttgatgagg tgagggtgag atatggttgt agtaggatgt gactttcatg ctttcagcaa 180
aatgtatgtg gggcttatta ccatgaggaa cttgggaagg gatgctggct ctcagaacca 240
cagtgccatt ccatacttcc tccatctgtc tccaggatca gaatcctatt aagaagcggg 300
agaagatacc tcagaaaggt cgggaagaaa aaggtcagtg aactgctggg acttaggtga 360
tcaggtgcaa ggtggggagt acaaattgag tctctttgga tttgccattc tgggtctcac 420
caagccctgt agtatctctt ccatactggg caataatctc cttagggtggg cttttatttt 480
ttgctttcct garctggaaa tcagcatcwt tyacaaattg 520
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<210> 470

<211> 879

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (472)

<223> n equals a,t,g, or c

<400> 470

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gaaaaccccg cgccgtcatc gagagctttg tgaatcacgc cccgggggtc ttctcaggga 180
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ccgacctggc ccccgagaact acctcctgcg agaagctcac ggctgcccc tcagcctccc 420
tgctgcaggg ccagagccag atccgcatgt gcaagcccc gggggaccgg cnttcggcag 480
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aaggcggccg cagcgacagc agtagcagcg ggggcggcgg caccgaagcg caggcctccg 660
gcttgggact cgacttcgag gagctccgta tgggaagccag aagtcaacct tgacatcaag 720
tcaaagtctg tgggtgggctt aggatctctc ggatcggcca aacttcggcc ctgcaaccg 780
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caaggagagc gggcaattcc cgcagtcaag acaggttgc 879
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<210> 471

<211> 2557

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (121)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (461)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 471

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gctccaccac caatgtctca gtctacctgt tcccttcatt ccattccactc tgagtggcaa 120
naaaggcccc tgtgtgagca cacaagaact ctgagcactc acagtgttcc caacatatca 180
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gaaaataactt ttcaggagct ccaggtaatg aggcgggctg naaatttggt tagaacacaa 480
atgatggatt tagaattggc aatgctgcgt caaaaccatg gtttatcatc atatgactga 540
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gcctaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 2557
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<210> 472  
<211> 467  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (455)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (466)  
<223> n equals a,t,g, or c

<400> 472  
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<210> 473  
<211> 1840  
<212> DNA  
<213> Homo sapiens

<400> 473  
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&lt;210&gt; 474

&lt;211&gt; 1258

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (36)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (528)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (726)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 474

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<212> DNA

<213> Homo sapiens

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<222> (4184)

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<223> n equals a,t,g, or c

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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (689)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
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<212> DNA  
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<220>  
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<222> (1127)  
 <223> n equals a,t,g, or c

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<211> 1237

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1236)

<223> n equals a,t,g, or c

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<211> 1098

<212> DNA

<213> Homo sapiens

<400> 479

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&lt;210&gt; 480

&lt;211&gt; 684

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (5)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 480

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```

&lt;210&gt; 481

&lt;211&gt; 2995

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1760)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 481

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<210> 482  
<211> 1248  
<212> DNA  
<213> Homo sapiens

<400> 482

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<210> 483  
<211> 1862  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc feature

<222> (124)

<223> n equals a,t,g, or c

<400> 483

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ccancgggaa ccactatctc tgactcctg gggttttgtt acatggctgc tttcctcaaa 180
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gatgaagatc ctctagctgc caccagagag ttcatgaga tgtggagatt gcttggcaga 480
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caaataaaaa aggaaatgaa agcagcagca agggaagaag caaaaaatat caagctgcta 660
gaaaccactg aggaagataa acagaaaaac tttctatttt tacgactttg ggataggaat 720
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aa 1862

<210> 484

<211> 1664

<212> DNA

<213> Homo sapiens

<400> 484

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<210> 485

<211> 969

<212> DNA

<213> Homo sapiens

<400> 485

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gggtgaccgag agccggggcc cgctgccagg agcctgggcg agggccaggc tggctttgct 180  
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<210> 486

<211> 2572

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (823)

<223> n equals a,t,g, or c

<400> 486

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<210> 487

<211> 1451

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1256)

<223> n equals a,t,g, or c

<400> 487

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cctctgcgc aggtgtctct gggcacccat cctctgcgtt tcatttgcag tcgactgtac 1380  
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aaaaaaaaa a 1451

<210> 488

<211> 1200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (285)

<223> n equals a,t,g, or c

<400> 488

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tccagtgcag gggcgtagtg ggatatggcc aactcgggct gcaaggacgt cacgggtcca 180  
gatgaggaga gttttctgta ctttgccctac ggcagcaacc tgctgacaga gaggatccac 240  
ctccgaaacc cctcggcggc gttcttctgt gtggcccgcc tgcangcaag aaggggttaa 300  
aagtggaatg tatgttgtaa tagaagttaa agttgcaact caagaaggaa aagaaataac 360  
ctgtcgaagt tatctgatga caaattacga aagtsctccc ccatccccac agtataaaaa 420  
gattatattgc atgggtgcaa aagaaaatgg tttgccgctg gagtatcaag agaagttaaa 480  
agcaatagaa ccaaagtact atacaggaaa ggtctcagaa gaaattgaag acatcatcaa 540  
aaagggggaa acacaaactc tttagaacat aacagaatat atctaagggt attctatgtg 600  
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<210> 489  
<211> 285  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (21)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (242)  
<223> n equals a,t,g, or c

<400> 489  
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tcagcctcct gaagacactg aacaccgcag tgttttccag tcagcaacgc aacaaaatca 180  
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<210> 490  
<211> 682  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (57)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (62)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (80)  
<223> n equals a,t,g, or c

<400> 490  
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cgcccttctt gctgcacaca gccacccag gacctccgc agcgctgaca ggcggggcgg 180  
gtgcaaagac ggggcggggt ctctgcgcc ggccccctcc cctgactatc aaagcagcgg 240  
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gaaagtccag tctctcctcg gcttgcaatg gaccccaact gtcctgcgc cgctgggtgtc 360  
tcctgcacct gcgctggttc ctgcaagtgc aaagagtgc aatgcacctc ctgcaagaag 420  
agctgctgct cctgctgccc cgtgggctgt agcaagtgtg cccagggctg tgtttgcaaa 480

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ggggcgctcag agaagtgcag ctgctgcgac tgatgccagg acaacctttc tcccagatgt 540
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cattcctttt cctgtgaaat atgtgagtga taattaaaca ctttagacct gaaaaaaaaa 660
aaaaaaaaaa aaaaaaaaaa aa                                     682

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&lt;210&gt; 491

&lt;211&gt; 1859

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 491

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aaaaaatgaa agacgctctg tttaaaacaa tgatgacagc agtacttaat atgtatttcg 180
aggtgaactt atatagattg agagaggctg catttggcag actgatgtat aggaagacct 240
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ctattgattt ccatatgcaa taaacctttt tttcagagaa aaaaaaaaaa aagtcgagc 1859

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&lt;210&gt; 492

&lt;211&gt; 2709

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2160)

<223> n equals a,t,g, or c

<400> 492

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gatgagttca ttgagagtat ttcccttctg ccggaacctg agaagacctt gcacactgaa 180
gatacagatc accagcacac tgcaagccat ggggaggaag aagccctaaa agaagatccc 240
cctagaaatc tcctggaaga gaggaaatca gatcaactgg ggctgcctca gaccttgacg 300
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gacaggagct gcacagtgtc tgtgcaactg agcaaccatc gtgtcaagat gctggtgaag 420
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agggcgccc 2709
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<210> 493

<211> 1451  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1307)  
<223> n equals a,t,g, or c

<400> 493  
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atgacaaagg tagaaaaaag cacaaatgaa gcaatggagt ggatgaataa caagctaaat 180  
ctgcagaaca agcagagttt gaccatggat ccagttgtca agtcaaaaaga gattgaagct 240  
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gacaacccag gccccaggc tgctgagcag ggtacagaca cagctgtgct tcggattcag 420  
acaagaagct tcctgaaatg gacattgatt gattccaaca cttgtttcta ttaaaacaga 480  
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agcattttca cttctaaata gttagatata gaaattaagt gcattgtatc tttttcataa 660  
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accatgtgtc tacaagaata agtttgtttt ggaaagttga gctatagcta cagctctagc 780  
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tcaattcgca c 1451

<210> 494  
<211> 1268  
<212> DNA  
<213> Homo sapiens

<400> 494  
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gtgaagtcca aggacgctgg tcttctttct ccctttgtag agtgaggatg aagctctgca 180  
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ggggggggg                                     1268
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<210> 495

<211> 384

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (382)

<223> n equals a,t,g, or c

<400> 495

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ccccggcccc agtagctggg accccaggca tgcaccatta caaccaacta attttttttn 360
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```

<210> 496

<211> 975

<212> DNA

<213> Homo sapiens

<400> 496

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tcmctgtgag gtcttkgtga attttatcgc taagatcaga atgtgagaag tatttgata 900
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agagactgag attgg 975

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<210> 497

<211> 2075

<212> DNA

<213> Homo sapiens

<400> 497

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caccggcgtg tgttcaccct cccgggtggc tcacacactc tcattcacac acacaaatct 180
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cagcaggact ccgccagtct gatgccagga ctgaataaag tgtatttgcc ccgacctgac 540
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2075

<210> 498

<211> 1904

<212> DNA

<213> Homo sapiens

<400> 498

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<210> 499

<211> 2871

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (267)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1642)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 499

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<210> 500

<211> 1624

<212> DNA

<213> Homo sapiens

<400> 500

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aaaa 1624

<210> 501

<211> 848

<212> DNA

<213> Homo sapiens

<400> 501

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&lt;210&gt; 502

&lt;211&gt; 3192

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3085)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 502

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<210> 503

<211> 683

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (622)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (626)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (648)

<223> n equals a,t,g, or c

<400> 503

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<210> 504

<211> 2196

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (18)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2104)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2148)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2196)

<223> n equals a,t,g, or c

<400> 504

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&lt;210&gt; 505

&lt;211&gt; 949

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 505

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&lt;210&gt; 506

&lt;211&gt; 365

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

<222> (359)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (361)

<223> n equals a,t,g, or c

<400> 506

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aagcctctgc gggaagtccg ccatgttctt cgagatattc ggtacccaat tcgccctata 300
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<210> 507

<211> 2059

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (18)

<223> n equals a,t,g, or c

<400> 507

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<210> 508

<211> 1337

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (726)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (772)

<223> n equals a,t,g, or c

<400> 508

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ggttcagacc cctttgtgaa aatccagctg gtgcatggac tcaaacttgt gaaaaccaag 360  
aagacgtcct tcttaagggg cacaattgat cctttctaca atgaatcctt cagcttcaaa 420

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<210> 509

<211> 731

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (33)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (720)

<223> n equals a,t,g, or c

<400> 509

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caagaggccc ataaatcttg agttacttta aattcttttt ttgatacaa gttttcagag 660
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<210> 510  
<211> 944  
<212> DNA  
<213> Homo sapiens

<400> 510  
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<211> 517  
<212> DNA  
<213> Homo sapiens

<220>  
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<210> 512  
<211> 3651  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc feature  
<222> (1283)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (3641)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (3650)  
<223> n equals a,t,g, or c

<400> 512

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<211> 1936

<212> DNA

<213> Homo sapiens

<400> 513

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<211> 1177

<212> DNA

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<222> (24)

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<400> 514

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<211> 932

<212> DNA

<213> Homo sapiens



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<220>  
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<220>  
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<222> (911)  
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<220>  
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<222> (912)  
<223> n equals a,t,g, or c

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&lt;210&gt; 517

&lt;211&gt; 2451

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 517

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<211> 989

<212> DNA

<213> Homo sapiens

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<222> (871)

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<222> (891)

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<222> (910)

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<222> (913)

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<222> (926)

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&lt;221&gt; misc feature

&lt;222&gt; (947)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 518

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&lt;210&gt; 519

&lt;211&gt; 3315

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 519

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<211> 2361

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<223> n equals a,t,g, or c

<400> 520

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tgaacacatt tccttgaaaa atgttggtgg ttttgtgat tatttatttt tttagatttc 180

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ttttcttttg cactacaatt tttggaatcc ttttggaat actgtgtgac tgctgtgttt 240
tgcagcatga attatagtaa aatgggtcttc aattcttaac aaatggactt ccctgatgag 300
accaaaaatgg tgattttaaca gtttttcttg tgtcccctaa aaagtggctc tgcttcagaa 360
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ctaccatcag ctgtcttggt tcatcatttc tctgagattc tgtgtgcagt gagcaatttt 480
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aaactagtga ataagtga aaaggaagac tcgtcattaa tctaaagaca gagttcaaaag 780
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gttacagccc agataagggt tggcggcacc gaatgctgga gttttcgggg cattcgggaa 2280
aagggccctt ttgtagggcc gttacggtta gctgtccgat agggcccttt ccgcccgtga 2340
aatgcaagtc tcaagagtcg a 2361
```

<210> 521

<211> 2521

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1721)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2477)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2516)

<223> n equals a,t,g, or c

<400> 521

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gcgtcggcga ggcaatgata ctctcacctc cagccctggc cgaagctccc ggcgtactga 180
tgccctcacc tccagccctg gccgtgacct tccaccattt gaggatgagt ccgaggggct 240
cctaggcaca gaggggcccc tggaggaaga agaggatgga gaggagctca ttggagatgg 300
catggaaagg gactaccgcg ccatcccaga gctggacgcc tatgaggccg agggactggc 360
tctggatgat gaggacgtag aggagctgac ggccagtcag agggaggcag cagagcgggc 420
catgcggcac gtgaccggga ggctggccgg ggccctgggc gcatgcgccg tgggctcctg 480
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cacggaggac ggcgaggagg acgaggagat gatygagagc atcgagaacc tggaggatct 600
caaaggccac tctgtgcgcg agtgggtgag catggcgggc ccccggtctg agatccacca 660
ccgcttcaag aacttcctgc gactcacgt cgacagccac ggccacaacg tcttcaagga 720
gcgyatcagc gacatgtgca aagagaaccg tgagagcctg gtggtgaact atgaggacac 780
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gaggcagctg catctgaacc agctgatccg caccagtggg gtggtgacca gctgcactgg 1020
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g 2521
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<210> 522  
 <211> 1303  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (1279)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (1286)  
 <223> n equals a,t,g, or c

<400> 522  
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 caagagcatg gatcattttg atgacattgg tcccagtggt gtaatggcct cccagggcat 120  
 gatgcaaagt ggcttatcca gagaattatt tgaaagctgg tgtactgata agaggaatgg 180  
 tgtcattata gcgggatact gtgtagaagg gacacttgcc aagcacatca tgtctgaacc 240  
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 ttctttctca gctcacacgg attaccagca aaccagtgaa tttattcgtg ctttgaaacc 360  
 gcctcatgtg atttttagtcc atggagaaca gaatgaaatg gccagattga aagcagcact 420  
 gattcgagaa tatgaagata acgatgawgt tcacatagag gttcataatc ctcggaatac 480  
 agaagcagtg accttaaaact tcagaggaga aaaactagcc aaggttatgg gatttttagc 540  
 agacaaaaaa ccagaacaag gccagcgggt ctcaggaata cttgttaaaa gaaactttta 600  
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 caaaaataaga aaaggtgcag tacagaaggt ttctaaaaaa ttagaaatgc acgtttacag 960  
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 tgactctatt cttagcgtca cagtggacgg gaaaactgcc aaccttaact tggagacacg 1080  
 gactgtagaa tgtgaagagg gaagtgaaga cgatgaatcc ctccgagaaa tggtaggagct 1140  
 ggctgcacag agactgtacg aggccttgac gccagttcac tgagactgtg cctgtatatg 1200  
 aactttgaaa aaataacttga ctctactttt gttacctaaa ataaaatgca ttcgtttctc 1260  
 wgggaaaaaa aaaaagttng ccgaantttc ccttgggggt att 1303

<210> 523  
 <211> 1100  
 <212> DNA  
 <213> Homo sapiens

<400> 523  
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 ttctactaac ttctggactt tccagctctt ccgaagttcg ttcttgccga aagcccaaag 180  
 gctggaaaac cgtccacgat gaccagcatg actcagctc tgccggagggt gataaaggcc 240  
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gcagctagaa atattcttgg aggaaaagga cctggatatac aagtagggta aaggtggggg 780  
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tcttagctca aagtgtttta aaaacaggta aagcaaagaa actagcagga ccactctcag 900  
ttaagattaa aactaaagtc cagtgttaag ctaaaggaga aatagaaatt aatggttcta 960  
attctgtttg ggctgctagg aacaacagaa atttttcatg gttctagaag ctggaaagtc 1020  
ctgggtcaag gccagcaga tcctgttagg tgagggcccg cttcctggct catagatggt 1080  
gccttctcac tgtgtggtga 1100

<210> 524

<211> 1963

<212> DNA

<213> Homo sapiens

<400> 524

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attttgaaca aggccttatt ctttcaggaa gacaactaat ggatgatagc aagttcatcc 180  
acttactggg cttgtgccat gagcaaaatt caaagtcctg tatactcttc attgtagatt 240  
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atgatattga gcagctacct acaattttcta tgtacatttt gtccccccc caccaccacc 360  
cccaaattac gttccttttg acattttcct catctgctgt ttgtgacaag tcatcagcca 420  
gatttcctga ctgacacata ggtagatca gtgcaggaga gacctgcga ccacaggctg 480  
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aaggaggatg acatgctgtc tcctctcttc agtatagaca ttaggctctt attcagaaag 600  
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cactttgtaa accatttata gctttgaaag tgtaagtga ttcttctggt attattttatg 780  
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tatgtatttg gtaaatgttt gtagtcaaca gttcacacaa gaagctgtac acggtttgat 1800

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catgtaaaac cgtttggcgg cacaagctgg actttgttgc catccttgag atgaaccttt 1860
taagaaaaat aagttaatct caatttttcc ctgaatgtgt tgtttttctt cattatacaa 1920
taaataataat agtgaacttt ttaaaaaaaaa aaaaaaaaaaaa aaa 1963

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<210> 525
<211> 794
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (782)
<223> n equals a,t,g, or c

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<400> 525
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caacccttgg ggtgaaagaa gtgaggaaaa ttaatgacca gtatattgca gtgcaaggag 180
cagagttgat aaaaacagta gatattgaag aagctgaccc gccacagcta ggtgacttta 240
caaaagactg ggtagaatat aactgcaact ccagtaataa catctgctgg actgaaaagg 300
gacgcacagt gaaagcagta tatggtgtgt caaaacggtg gagtgactac actctgcatt 360
tgccaacggg aagcgatgtg gccaaagcact ggatgttaca ctttcctcgt attacatatc 420
ccctagtgca tttggcaaat tggttatgcg gtctgaacct tttttggatc tgcaaaactt 480
gttttaggtg cttgaaaaga ttaaaaatga gttggtttct tcctactgtg ctggacacag 540
gacaaggcct caaacttgct aaatcttaat ttggacccca aagcgggata ttaataagca 600
ctcatactac caattatcac taacttgcca ttttttgtat gctgtatttt tatttgttga 660
aaataccttg ctacttctgt agcctgctct cactttgyct ttycttaagg taattatggg 720
aatataaggc sttggggaaa aacattttta tgaaagggtat gtaggggggt ccaatgctta 780
cngtaaatagc ctaa 794

```

```

<210> 526
<211> 2599
<212> DNA
<213> Homo sapiens

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```

<220>
<221> misc feature
<222> (57)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (2410)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (2461)
<223> n equals a,t,g, or c

```

```

<220>

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<221> misc feature  
<222> (2475)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2500)  
<223> n equals a,t,g, or c

<400> 526

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taccagcctt. tgggaagtcg tgtgaatacc tcggtctctt agccacaggg atagaatggc 180
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ggattgatag aaaggtttac aaaagatact gcaaggttca aggatgagtt agatatcatg 480
aagttcattt gtaaagattt ttggactacg gtattcaaga aacaaatcga caatctaagg 540
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tctgcaggaa aacagtattt agaacatgca tctaagtatt tagcatttac gtgtggctta 660
atcagaggtg gcttatcaaa cttgggaata aaaagtattg taacagctga agtgtcttca 720
atgcctgctt gcaaatttca ggtgatgata cagaagctgt agaacatact gaaatgcaag 780
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tttggttaga gtgatatgta tttagccata gatggagaaa caaagctcag ggtttggtga 1080
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gtgtgtatat ataaatacat atatgactgc cttaaattgt tataaattta attttcttt 1320
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gctaagcaat gcatgactgc aatcctaatt ctcacatgtt ttggggraaa aatttttaatt 2400
ttgaaaaaan ttaggaaagt tcctacyaaa tatacatgta taaagtttat taaaagtcac 2460
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aaataagttg ggtttggtt                                     2599

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&lt;210&gt; 527

&lt;211&gt; 1305

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1293)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 527

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&lt;210&gt; 528

&lt;211&gt; 1631

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1628)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 528

```

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gagccgagcc gagccgagcc ggagcgggag gcgaaggccg gcgcggcgag cagcaaccat 120

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gggggggncc c 1631
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<210> 529

<211> 1944

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (568)

<223> n equals a,t,g, or c

<400> 529

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tcaaattgat gccagatgcc aaccccagtt ctggccacgt acagccagcg ggtcagccca 480
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gcagcccccg ccagctgcc tcraatcccg tccaggccar ttccagattc taaactgatt 1860  
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<210> 530

<211> 1425

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1409)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1411)

<223> n equals a,t,g, or c

<400> 530

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ctgcggcggc ggagctggcc gctcagaagc gcgaacagag actgcgcaaa ttccggggagc 180  
tgcacctgat gcggaatgaa gctcgtaaat taaatcacca ggaagtgtgt gaagaagata 240  
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aggaagagga aaagaaaaag gaatgtgcgg caagaggaga agactatgag aaagtgaagt 360  
tgctggagat cagtgcagaa gatgcagaaa gatgggagag gaaaaagaag aggaaaaacc 420  
ctgatctggg attttcagat tatgctgctg cccagttacg ccagtatcat cggttgacca 480  
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<210> 531

<211> 1466

<212> DNA

<213> Homo sapiens

<400> 531

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gaccatcact cattaagaac agaggaggct gcctgttact cctggtgttg catccctcca 180  
gacactctgc tgtttcctgc ctaggcgtgg ctgcagccat ggctaggaaa gcgctgccac 240  
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aaaaaaaaaa aaaaaaaaaa aaaaaa 1466

<210> 532

<211> 1658

<212> DNA

<213> Homo sapiens

<400> 532

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ccccgcggcg cgccgcgagg gccatgctag ccttgcggtt ggcgcgcggc tcgtgggggg 180  
ccctgcgcgg cgccgcttgg gctccgggaa cgcgccgag taagcgascg cctgctgggc 240  
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gaaggcggtt ccagggccag cggaykcg ggcgcgctg ccgaagcccc ggcgkccag 420  
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tcaatgacga gaattggctt ggccccagtt ctgggctatt tgattattga agaagatttt 540  
aatattgcac taggagtttt tgcttttagt ggactaacag atttgttgga tggattttatt 600  
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&lt;210&gt; 533

&lt;211&gt; 2857

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 533

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gtggggggcg ggaaccttg ccgactcagg acgccacggg aggaagccac gcaaaatagc 180  
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<210> 534

<211> 1335

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1334)

<223> n equals a,t,g, or c

<400> 534

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ttgttctcgt gtgtgatcat gagtgcacaa tgaagaagac cctagatgct gcatttttta 180  
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<211> 2818

<212> DNA

<213> Homo sapiens

<400> 535

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<210> 536

<211> 1397

<212> DNA

<213> Homo sapiens

<400> 536

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<210> 537

<211> 1233

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1111)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1122)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1202)

<223> n equals a,t,g, or c

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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (147)  
<223> n equals a,t,g, or c

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<210> 539  
<211> 1679  
<212> DNA  
<213> Homo sapiens

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<210> 540

<211> 1080

<212> DNA

<213> Homo sapiens

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<220>

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<222> (978)

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<222> (1044)

<223> n equals a,t,g, or c

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<222> (1067)

<223> n equals a,t,g, or c

<400> 540

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<210> 541.

<211> 2259

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2213)

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<220>

<221> misc feature

<222> (2242)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2247)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2250)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2253)

<223> n equals a,t,g, or c

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&lt;210&gt; 542

&lt;211&gt; 1347

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1290)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 542

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agcgatttac tcttctccaa tcagtgcata tttacaagaa gcacagagtt cagtatgaaa 420
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acttgggaata tattcagcga aacttacctg aagggggtgc catggaagta acaaagacac 540

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acattcagca ctgtagttaa gtaccca 1347

<210> 543

<211> 1901

<212> DNA

<213> Homo sapiens

<400> 543

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ataacacca aagcttttgt gttcagaaac tatggtcatt ttcttggaat caactctcat 540  
tatttgggag gctgtcagta taaaatgtgg caggccatta gagcctcatc tgctgctcca 600  
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aataaccctt cggcattagc tatgcatgag tgtaaatgtc tttggccaga tgtgccgta 720  
gagtgcatag tatccctggg cactggacgt tatgagagt atgtgagaaa cacggtaaca 780  
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cactagctta ttcttccctg ttataaaatg gtttgaactt actgaggaga tattcctatc 1860  
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<210> 544

<211> 842

<212> DNA

<213> Homo sapiens

<400> 544

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aggcgggtgac taaggctcag aagaaggacg ggaagaagcg caagcgcagc cgcaaggaga 180  
gctattcagt gtatgtgtac aagggtgctga agcagggtcca tcccgacacc ggcattctctt 240  
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gcacactggt tcatcaaaaag aagggtaccg aggggaagga actaaagggtg tttgcacttc 660  
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<210> 545

<211> 778

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (641)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (652)

<223> n equals a,t,g, or c

<400> 545

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accgggtcca gacccacgcg gcgccagttc tccggcgagg agggaaaccg cgcagagagg 180  
cagcaatgaa tgtggatcac gaggttaacc tcttagtgga ggaaattcat cgtttgggtt 240  
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gtgccaacct ctttgaagca ttggtaggaa ctcttaaagc tgcaaaacga aggaagattg 360  
taacatatcc aggagagctg cttctgcaag gtgttcatga tgatgttgac attatattac 420  
tgcaagatta atgtggttta catatcttta tgtactgcca ttttttgtt ctggtaaact 480  
ggaatataaa gtgaaagaac aaacatttga acatacttaa tgtattttta tagaactttg 540  
taaacgaaag gagattcatg ttttagaagt ctgtcctttt ttatatcttg aaagaaaatc 600

tatgtatgat gctataaaaat aaatcctatt attttctmag natmtggttg anattctgcg 660  
aaagcaacaw gcaaactgaa gaccaactcc tatgagaaat attatgatgt ttatgtaata 720  
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<210> 546

<211> 2142

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (225)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (619)

<223> n equals a,t,g, or c

<400> 546

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aagtcagatc atgaagaact ttcaggctcc tccacaaatc tcgctgacca taacccttct 180  
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caacagtgtg gcttcacctg gtacagtgtg cgatgatgat ccggataagg acaaaaaacg 360  
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aggacttaca attctccaag taaacaactg gtttattaat gccagaagaa gaatagtaca 540  
gcccatgatt gaccagtcaa atcgagcagg ttttcttctt gatccttcag tgagccaagg 600  
agcagcatat agtcagang gtcagcccat ggggagcttt gtgttggtg gtcascaaca 660  
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aagaaaatgc tgttaccttt aagctttgtc aaattttacat taaaatactt gtatgaggac 2040  
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<210> 547

<211> 1893

<212> DNA

<213> Homo sapiens

<400> 547

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agcatgaatt ggaactgcaa tgaaagtcaa atttacttta aaaagaaatt aatatggctt 180  
caccaagaag caaagttaa cttatttcat aattgcctac atttatcatg gtcctgaatg 240  
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tcattttaaa atgtcttggt cttctactgc cttgaaaaat gacaattgtg aacatgatag 420  
ttaaactacc acttttttta accattatta tgcaaaattt agaagaaaag ttattggcat 480  
ggttgttgca tatagttaaa ctgagagtaa ttcactctgtg aatctgcttt aattacctgg 540  
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tagaaactga aaaatatcyg gttatatcat tctgggtgtg ttcttactga caccaggggt 660  
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ccttttttaa aaaaaaaaaa aaaaaaaaaa aaa 1893

<210> 548

<211> 630  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (61)  
<223> n equals a,t,g, or c

<400> 548  
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ccagttctta cttgcctgtg cagactttga ggggaagggt gtgaagactt cggttgtgtt 180  
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aggtgaagga tactgggttt ttagatgcct tgtccatcct gtctggttgc aatgttttgc 480  
tcccagaaga gaatcagatc atcatgtggg gattaccatt gttcctggag tactcctacc 540  
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<210> 549  
<211> 586  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (508)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (510)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (514)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (573)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (583)  
<223> n equals a,t,g, or c

&lt;400&gt; 549

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gcaagcgcag ccgcaaagag agctactcca tctacgtgta caaggtgctg aagcaggtcc 180
accccgacac cggcatctcg tccaaggcca tgggcatcat gaactccttc gtcaacgaca 240
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tcacatcccg cgagatccag acggccgtgc gcctgctgct gcccggcgag ctggccaagc 360
acgccgtgtc cgagggcacc aaggcgggtca ccaagtacac cagctccaag tgagtccctg 420
ccgggacctg gcgctcgctc gctcgagtcg ccggctgctt gactycaaag gctcttttca 480
garccacca cctaactact agaaaarnan cttngttcac ttaatttccc ctttaatttc 540
tttttccata aaargttaag ttaattttta agnggtgaaa ggntca 586
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&lt;210&gt; 550

&lt;211&gt; 1586

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1574)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1578)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1585)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 550

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gccatgtcgc agaacggagc gcccgggatg caggaggaga gcctgcaggg ctcttgggta 180
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aatggagaca tggaaaaaat actgctggac gcacagcatg agtctggacg gagtagctcc 300
aagagctctc actgtgacag cccacctcgc tcgcagacac cacaagatac caacagagct 360
tctgaaacag atacccatag cattggagag aaaaacagct cacagtctga ggaagatgat 420
attgaaagaa ggaaagaagt tgaaagcatc ttgaagaaaa actcagattg gatatgggat 480
tggtaagtc ggcgggaaaa tattcccccc aaggagtccc tctttaaaaca cccgaagcgc 540
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gaatttctga aagttttcct tccatctctg ctgctctctc atttgctggc catcggattg 660
gggatctata ttggaaggcg tctgacaacc tccaccagca ccttttgatg aagaactgga 720
gtctgacttg gttcgtagt ggattacttc tgagcttgca acatagctca ctgaagagct 780
gttagatcct ggggtggcca cgtcacttgt gtttatttgt tctgtaaag ctgcgttcct 840
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gatcaataag catgtcagac tgattaatgt ctactgtgaa aatttggtag taaattttca 960
tttgatatta gatataaata tctgaatata aataatttta atatactagt catgatgtgt 1020
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ggccttatat atcacactat tgtagaaaagt attattttaat ttaaattggat gcaggttggtc 1200  
tactaaagaa agattatata taactatgct aattgttcat aatcaacaga aaccaagata 1260  
gagctacaaa ctacagctgta cagttcgtac actaaactct tcttgctttt gcattataag 1320  
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ymggggggggg cccnggancc aattnc 1586

<210> 551

<211> 2143

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1602)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2086)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2097)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2140)

<223> n equals a,t,g, or c

<400> 551

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<210> 552

<211> 1634

<212> DNA

<213> Homo sapiens

<220>

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<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1468)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1509)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1519)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1566)



<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1608)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1623)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1629)

<223> n equals a,t,g, or c

<400> 552

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<210> 553

<211> 278

<212> DNA

<213> Homo sapiens

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&lt;210&gt; 554

&lt;211&gt; 2658

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1292)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2128)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 554

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<210> 555

<211> 1728

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1517)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1525)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1641)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1642)

<223> n equals a,t,g, or c

<400> 555

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&lt;210&gt; 556

&lt;211&gt; 3355

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (210)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 556

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&lt;210&gt; 557

&lt;211&gt; 1079

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

<220>  
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<222> (187)  
<223> n equals a,t,g, or c

<220>  
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<222> (641)  
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<220>  
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<220>  
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<220>  
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<213> Homo sapiens

<400> 558

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<212> DNA

<213> Homo sapiens

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<211> 2645

<212> DNA

<213> Homo sapiens

<400> 560

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<211> 1717

<212> DNA

<213> Homo sapiens

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<222> (386)

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<222> (427)

<223> n equals a,t,g, or c

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<211> 2417

<212> DNA

<213> Homo sapiens

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<220>

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<221> misc feature

<222> (2398)

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<400> 562

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&lt;210&gt; 563

&lt;211&gt; 1544

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 563

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<210> 564

<211> 2299

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (179)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (180)

<223> n equals a,t,g, or c

<400> 564

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<210> 565

<211> 364

<212> DNA

<213> Homo sapiens

<400> 565

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<210> 566

<211> 2481

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1213)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1214)

<223> n equals a,t,g, or c

<400> 566

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<210> 567

<211> 1364

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1362)

<223> n equals a,t,g, or c

<400> 567

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&lt;210&gt; 568

&lt;211&gt; 1606

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 568

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<210> 569

<211> 1385

<212> DNA

<213> Homo sapiens

<400> 569

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<210> 570

<211> 1144

<212> DNA

<213> Homo sapiens

<400> 570

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<210> 571

<211> 2754

<212> DNA

<213> Homo sapiens

<220>

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<222> (2610)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2611)

<223> n equals a,t,g, or c

<400> 571

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<210> 572

<211> 2657

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1285)

<223> n equals a,t,g, or c

<400> 572

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<210> 573

<211> 2352

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2096)

<223> n equals a,t,g, or c

<400> 573

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<210> 574

<211> 328

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<400> 574

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ccgcagcagt ggatagaggt gcagatct 328
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<210> 575

<211> 1678

<212> DNA

<213> Homo sapiens

<400> 575

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<210> 576

<211> 2508

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>  
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<222> (2464)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2472)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2494)  
<223> n equals a,t,g, or c

<400> 576

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<210> 577

<211> 1531

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<220>

<221> misc feature

<222> (433)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (435)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1525)

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<220>

<221> misc feature

<222> (1530)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1531)

<223> n equals a,t,g, or c

<400> 577

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&lt;210&gt; 578

&lt;211&gt; 1244

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 578

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 <223> n equals a,t,g, or c

<220>  
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&lt;211&gt; 4006

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 580

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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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&lt;211&gt; 2528

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 582

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<211> 1931

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1931

<210> 585  
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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (1006)  
<223> n equals a,t,g, or c

<220>  
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<222> (1018)  
<223> n equals a,t,g, or c

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tatgtaccgt aggctttgta ttcaaaaatt atctatagct aagtacacaa taagcaaaaa 960  
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<210> 586  
<211> 767  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (617)  
<223> n equals a,t,g, or c

<400> 586  
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gattcataag ctggcctgag gtgatcttgg catcaaggaa gggatgcaca tcatcacacc 180  
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&lt;210&gt; 587

&lt;211&gt; 847

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 587

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&lt;210&gt; 588

&lt;211&gt; 2158

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 588

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<210> 589

<211> 2299

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (342)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (772)

<223> n equals a,t,g, or c

<400> 589

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tggaagaat gcaggccca 2299

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<210> 590

<211> 2180

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1353)

<223> n equals a,t,g, or c

<400> 590

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<210> 591

<211> 1193

<212> DNA

<213> Homo sapiens

<400> 591

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<210> 592

<211> 2002

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1914)

<223> n equals a,t,g, or c

<400> 592

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agcccaaagg taagttgcta tttcatcac agttgcctat gccagggaa taagatgtat 1800  
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taaatttgaa taagcagaac atactgttct caacatactg taatcaaaag gggnaatttc 1920  
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<210> 593

<211> 1014

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 593

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aagaactcct gatgcctgat tggtatgttt atgaacaaac aaggtgaagg gttcagtata 120
agttgggaaa tcctagagca accatatctg ttactttcca tcctggttat atttcttaat 180
tagactgcga gttctgaatg aagtcctttt taaatagagc agttaatgcc atttctgtct 240
ctgcagggtt cacaagtagt gtttctaaat gagctctata atctgaaacc gggtcatctt 300
tcttttgccc acaagattat gtgattgacc aatcaatttt ttgtggaaaa gccctaggga 360
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tgaggattct caattttcca gtacgttttt gagtattttc tcttggatta gttaagtctt 600
tatgatggct ctaagctcag ctttagacca tggagtaaaa gtggttacag caggcaggct 660
ggttgactag agagtctcac tttgtaaggc atttgtccaa cttccccctt ttcattagcc 720
tcaaggagaa aaggtaactg agcaaaaagg ttactgtact caaagcatcg aggcaaagaa 780
gagacagaga aggagcaatc caggttcatg tgctgcatga gcctttcatt tgcgttttgt 840
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ttaaaatgca tcccgttggt tttgtggcgt tttcgatcct ttcttttyta atgtgtccca 960
taaataaaca gttttattta aagtttaaaa aaaaaaaaaa aaagaaaaaa agaa 1014
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&lt;210&gt; 594

&lt;211&gt; 333

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (242)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (292)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (328)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 594

```
ggagcgagtg caaggccgcc tgagcgcggc cccacccggg yggcgggccag ggacccccga 60
ggcccccttc tgcctttgag cttctcctct gtcceaacag acaccttcca ctctgaggtc 120
tcaccttcgc ctctgtgaa gtctccccgc agccctctcc acccagaggt ctccctatac 180
cgagaccac catccttcca tcctgaggac cgccccaaacc ctccggagccc cccactcagt 240
angtctgaaa gggcttcatt tggaccgaaa caaccgggtt aaccttataa gncttctaag 300
gcttccttaa ggaacctttc aaccaaanc ttc 333
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&lt;210&gt; 595

<211> 1120

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (40)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (585)

<223> n equals a,t,g, or c

<400> 595

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atgcatccga gtttggaac cccacttaag ggatggagcc tgggggatca cattaacgg 180
aaaatgcaa cgacttctac cacctctacg cgtttttagt ttttcatttt ctcgaaggaa 240
gcgccagaag cctgtggagt aattgtaact agagggagaa cggaaagctg aggtgactgc 300
tccggggact tggcgcggcg ccttgggtggc tttggttgct cttccacgct cccggcagct 360
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cgggatccsa gccggggatg acgatgctga tggagctgat ggggcaagag tgggaacgga 660
gaagtgcagc tttctgcasg tgcgcctcaa tcgctaagtt ccactctcca tcctctgccg 720
cgctactcct ggcagtgtga tcaccaagat acaatttctg gtcctgtctg ttcttattga 780
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ggatcctgac aaagtaatgt tagagatgtg ctgacagctt tacaatagat attctccaac 1020
taatttgaca agatataaaa taaaatgtag ttcgtagttt tcaagcatta atggaaagtg 1080
ttcctattaa aaaattacca ataacagtgg aaaaaaaaaa 1120
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<210> 596

<211> 532

<212> DNA

<213> Homo sapiens

<400> 596

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ttgagtaatt ccatgccttt tgacaagtgt tctgtaccca tgccacgacc accacaatcg 180
agagagaaca ttttcatcac tccagaaggg ctcttttgca gtgagtactc cctaggagtt 240
ccagcgggccg gtgacattga tctgttttct gtcactgtag atgagatttg tctgttatat 300
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acaatttttta aaaatttaa gatatgtatg gcttcttttg cttagcataa tgtttttgag 360  
cttattcatt tggtgcata atcaatactt tgcttctttt taccacctgt acttcattta 420  
tggtacggtt gtttatccat gtgtttatcc ccaatggaca ttgggttggt tctgattttt 480  
tggttattat tatgaataaa gttgctatga acattattgt ataaaaaaaa aa 532

<210> 597

<211> 1494

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1483)

<223> n equals a,t,g, or c

<400> 597

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gctccgagcg tcggttcctc atgccatgca cctgctgtca cccagcatgc accctatttt 120  
aagggtacag ccgttggtcaa tggagagttc aaagacctaa gccttgatga ctttaagggg 180  
aaatatttgg tgcttttctt ctatcctttg gatttcacct ttgtgtgtcc tacagaaatt 240  
gttgctttta gtgacaaagc taacgaattt cacgatgtga actgtgaagt tgtcgcagtc 300  
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ttggggccaca tgaacatcgc actcttgtca gacttaacta agcagatttc ccgagactac 420  
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ggagtcacatc agcatttgag cgtcaacgat ctccagtg gccaagcgt ggaagaaacc 540  
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aaggtaaatc agtagatcac ccagtgtgat ctgcacctc tcaactgaga gaagaaccac 720  
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taaaactgaat tttcttttaa gctaacaaag atcataattt tcaatgatta gccgtgtaac 1140  
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cagagtgact taactgatca tgcattgatcc ctcatccctg aaattgagtt tatgtagtca 1260  
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gtaatcgatt ataaaggata tttatcaa atccagggttg cattttgaaa ttataattat 1380  
tttctttgct gaagtattca ttgtaaaaca tacaaaataa acatatttta aaacatttgc 1440  
attttaccac caaaaaaaaa aaaaaaaaaa cctcgggggg ggncccggtc ccca 1494

<210> 598

<211> 2188

<212> DNA

<213> Homo sapiens

<400> 598

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atgagggtat atattcggag ygagcgcggg acscgatgag tggccgcgcg gaaggagctg 180

gagacggctcg tagctgcggt cgcgccgaga aaggtttaca ggtacatata ttacacccct 240  
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tccaaagctg ggcaagagca cctactacgt ttctggaatg agcttgaaga agcccaacag 360  
gtagaacttt atgcagagct ccaggccatg aactttgagg agctgaactt ctttttccaa 420  
aaggccattg aaggttttaa ccagtcttct caccaaaaaga atgtggatgc acgaatggaa 480  
cctgtgcctc gagaggtatt aggagtgct acaagggatc aagatcagct ccaggcctgg 540  
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gggcagggga caagactcgg cgttgcatat cctaagggga tgtatgatgt tggtttgcca 660  
tcccgttaaga cactttttca gattcaagca gagcgtatcc tgaagctaca gcaggttgct 720  
gaaaaatatt atggcaacaa atgcattatt ccatggtata taatgaccag tggcagaaca 780  
atggaatcta caaaggagtt cttcaccaag cacaagtact ttggtttaaa aaaagagaat 840  
gtaatctttt ttcagcaagg aatgctcccc gccatgagtt ttgatgggaa aattattttg 900  
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gcagcccaga atattgtgga ggatatggag caaagaggca tttggagcat tcatgtctat 1020  
tgtgttgaca acatattagt aaaagtggca gaccacaggt tcattggatt ttgcattcag 1080  
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gacaactgaa gtttaaatat ccacagggtt ttattttgct tgttgaactc ttagagctat 1980  
tgcaaacttc ccaagatcca gatgactgaa tttcagatag catttttatg attcccaact 2040  
cattgaagggt cttattttata taattttttc caagccaagg agaccattgg ccatccagga 2100  
aatttcgtac agctgcaagt aaactgatgt tgaacatccw gctwtayttc agctggaagc 2160  
atttgttttt gaagttgtac atagtaat 2188

&lt;210&gt; 599

&lt;211&gt; 1273

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 599

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ctcacctatg acatgccaca catacatgta actgagctgg gttttgagta gttagttgga 120  
gagtttttta attgagaagt ttaattcaga agtttgtttt tgttgccctct gatttaacat 180  
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gatgctcttg atgcaaaatc caaagagttt gcacagatca tcaagattgg acgtactcat 360  
actcaggatg ctgttccact tactcttggg caggaattta gtggttatgt tcaacaagta 420  
aaatatgcaa tgacaagaat aaaagctgcc atgccaagaa tctatgagct cgcagctgga 480  
ggcactgctg ttggtacagg tttaaatact agaattggct ttgcagaaaa ggttgctgca 540  
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ttgatcttgc ctgaaaatga accaggaagc agtatcatgc caggcaagggt gaaccctact 780  
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cacaaaaatg gatcaacctt aaaggaaact gctatcgaac ttggctatct cacagcagag 1140  
cagtttgacg aatgggtaaa acctaaggac atgctgggtc caaagtgatt tacataaatt 1200  
tataatgaaa ataaacatgt ataaaattta aaaaaaaaaa aaaaaatcgg gggggggggc 1260  
ccgtacccat tgg 1273

<210> 600

<211> 1239

<212> DNA

<213> Homo sapiens

<400> 600

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ggcgtgcaaa aactaacatt gaaattttga aacagcagca gtagtgagtg attttatttt 180  
tcgttattgt tgggtggtta aaaaattccc cccatgtaat tattgtgaac accttgcttt 240  
gtggtcactg taacatttgg ggggtgggac agggaggaaa agtaacaata gtccacatgt 300  
ccctggcatc tgttcagagc agtgtgcaga atgtaatgct cttttgtaag aaacgtttta 360  
tgatttttaa aataaattta gtgaacctat ttttggtggt catttttttt ttaagacagt 420  
catttttaaa tgggtggtga atttcccaac ccacccccaa actaaacact aagtttaatt 480  
ttcagctcct ctgttggaaca tataagtga tctcttggtg gacataggca aaataacttg 540  
gcaaacttag ttctggtgat ttcttgatgg tttggaagtc tattgctggg aagaaattcc 600  
atcatacata ttcatgctta taataagctg gggatttttt gtttggtttt gcaaattgct 660  
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taaaattcac ttccaaataa ataaaacacc catgatgcta gatttgatgt gtgcccraat 1140  
tgaacaaggg ttgattgaca cctgtaaaat ttgttgaaac gttcctctta aaaggaaata 1200  
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<210> 601

<211> 1286

<212> DNA

<213> Homo sapiens

<400> 601

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gtgcgagcca ctgcgcctgg ctggttttca tgaatcttga tagacatcta taacgttatt 180  
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aacttgaatt cagaatatta agaaaatgaa gtaactgatt ttctaaaaaa aaaaaaaaaa 300
aaaattttcta cattataact cacagcattg ttccattgca ggttttgcaa tgtttggggg 360
taaagacagt agaaatatta ttcagtaaac aataatgtgt gaacttttaa gatggataat 420
agggcatgga ctgagtgtcg ctatcttgaa atgtgcacag gtacacttac cttttttttt 480
ttttttttta agtttttccc attcaggaaa acaacattgt gatctgtact acaggaacca 540
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gtggggtggg taatactgtc tgtgaaataa tgtaagaagc ttttcaacta aaaaaaatgc 660
attactttca cttaacacta gacaccaggt cgaaaatttt caaggttata gtacttattt 720
caacaattct tagagatgct agctagtgtt gaagctaaaa atagctttat ttatgctgaa 780
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ataaaggaag tggattcatt aaactaaaaa aaaaaaaaaa aaaaaaaaaa aaaagtcgac 1260
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<210> 602

<211> 404

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (399)

<223> n equals a,t,g, or c

<400> 602

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ggaggtgttt tgtctaacca tcaaaatggt tgagactttt ttttaaacat ttctgagttc 120
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acattactga tagaggaagt cattagaatc atttttaagt ttcagatata ggagacttca 240
tgcaatttgg agataagact aattattggg ggttttcctt ggattttttt ttttaataact 300
gggggctatt ttatcagctt gcctattaaa ggactatggt aagtatagaa tcttaatggt 360
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```

<210> 603

<211> 1168

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1121)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1122)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1133)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1153)

<223> n equals a,t,g, or c

<400> 603

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ccccagggtcc agttcaaaact tgtattgggt ggtgatgggt gtactggaaa aacgaccttc 180
gtgaaacgtc atttgactgg tgaatttgag aagaagtatg tagccacctt ggggtgttag 240
gttcatcccc tagtgttcca caccaacaga ggacctatta agttcaatgt atgggacaca 300
gccggccagg agaaaattcgg tggactgaga gatggctatt atatccaagc ccagtgtgcc 360
atcataatgt ttgatgtaac atcgagagtt acttacaaga atgtgcctaa ctggcataga 420
gatctgggtac gagtggtgta aaacatcccc atttgtttgt gtggcaacaa agtggatatt 480
aaggacagga aagtgaaggc gaaatccatt gtcttcacc gaaagaagaa tcttcagtag 540
tacgacattt ctgccaaaag taactacaac tttgaaaagc ccttcctctg gcttgctagg 600
aagctcattg gagaccctaa cttggaattt gttgccatgc ctgctctcgc cccaccagaa 660
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<210> 604

<211> 458

<212> DNA

<213> Homo sapiens

<400> 604

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gatcggttaac tgaagacaat atgcaaaatt ctacatgga tgaatacaga aattctagta 180
atggcagcac aggaacaggt tcagaggtag tggtagaaca tcctactgat ttcagtactg 240
agattatgaa cgttacagaa atggaacagt cacctgatga ctctcccaat gtgaatgcat 300
ctacagaaga aactgaaatg gcaagtgtg tggaccttcc agtgacgtg acagaaacag 360
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<210> 605

<211> 911

<212> DNA  
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (904)  
<223> n equals a,t,g, or c

<400> 605  
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ggaagcttcc gcagagccgg ccgggctttc ccagtcctcc gtggggacca gcattagcag 180  
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cgcncatagg g 911

<210> 606  
<211> 738  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
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<223> n equals a,t,g, or c

<400> 606  
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gttattttgt gctaataaaa gagtaattaa ttccaaaaaa aaaaaaaaaa aaaaaaaaaa 660  
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ggatccaagn ttacgtnc 738

<210> 607

<211> 1348

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1328)

<223> n equals a,t,g, or c

<400> 607

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aagtgcgtgaa cttatttttc aaccatttca caaggaggac aagttgaatg gaccttttta 660  
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<210> 608

<211> 722

<212> DNA

<213> Homo sapiens

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 <223> n equals a,t,g, or c

<220>  
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 <222> (703)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (718)  
 <223> n equals a,t,g, or c

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<210> 609  
 <211> 330  
 <212> DNA  
 <213> Homo sapiens

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 <222> (315)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (321)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (330)  
 <223> n equals a,t,g, or c

<400> 609  
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<210> 610

<211> 1866

<212> DNA

<213> Homo sapiens

<400> 610

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aatatattac tgcttaaaaa gatttcctaw aaagaaatgt atcmagtgtg tgaatcaaag 180  
tctgaaagaa agatgaagag ccaccagact tctaggtagg tttacatcca tcatgttcct 240  
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tcgacg 1866

<210> 611

<211> 2176

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature  
<222> (2162)  
<223> n equals a,t,g, or c

<220>  
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<222> (2168)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (2169)  
<223> n equals a,t,g, or c

<400> 611

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2176

<210> 612

<211> 3619

<212> DNA

<213> Homo sapiens

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<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<400> 612

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<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (297)

<223> n equals a,t,g, or c

<400> 613

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&lt;210&gt; 614

&lt;211&gt; 1433

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 614

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&lt;210&gt; 615

&lt;211&gt; 506

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<400> 615

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<210> 616

<211> 2174

<212> DNA

<213> Homo sapiens

<400> 616

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<210> 617

<211> 3147

<212> DNA

<213> Homo sapiens

<400> 617

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&lt;210&gt; 618

&lt;211&gt; 2529

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 618

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<211> 551

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<400> 619

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<210> 620

<211> 1735

<212> DNA

<213> Homo sapiens

<400> 620

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&lt;210&gt; 621

&lt;211&gt; 1026

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 621

```

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aatggggata gtcttcatga ccacaaataa ataaaggaaa actaagctgc attgtgggtt 240
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&lt;210&gt; 622

&lt;211&gt; 670

&lt;212&gt; DNA



<213> Homo sapiens

<220>

<221> misc feature

<222> (598)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (645)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (649)

<223> n equals a,t,g, or c

<400> 622

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gaaggaatcc accttcttac gctatggcag gtaagaaagt actcattgtc tatgcacacc 360
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acgaagccta caagcaaagg tctctggcta gcgacatyac tgatgagcag aaaaaggntt 600
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ttcttgaaag                                     670
```

<210> 623

<211> 2163

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<400> 623

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caccgaatcc gcatgactca taatttgctg ctcaactatg gtctctaccg aaaaatggaa 240
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attaaattct tgcgctccat ccgtccagat aacatgtcgg agtacagcaa gcagatgcag 360
agattcaacg ttggtgagga ctgtccagta ttcgatggcc tgtttgagtt ctgtcagttg 420
tctactggtg gttctgtggc aagtgtgtg aaacttaata agcagcagac ggacatcgct 480
gtgaattggg ctgggggcct gcaccatgca aagaagtccg aggcacatctg cttctgttac 540
```

```

gtcaatgata tcgtcttggc catcctggaa ctgctaaagt atcaccagag ggtgctgtac 600
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gtcatgactg tgccttttca taagtatgga gactacttcc caggaactgg ggacctacgg 720
gatatcgggg ctggcaaagg caagtattat gctgttaact acccgctccg agacgggatt 780
gatgacgagt cctatgaggc cattttcaag ccggtcatgt ccaaagtaat ggagatgttc 840
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aaa
2163

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&lt;210&gt; 624

&lt;211&gt; 601

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (562)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (566)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (600)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 624

```

ggcgagatct tctctgtggc ggagacagcc aggttggcag ctgacgggac agccgggggtc 60

```

tat t t t t g t t g c g g g t t t t c a g c a a a t c c a g g g c t g g t c t g g a g g c g c g a a a a c t t a a g g c 120  
a t a c a g a a c g a t g g a g t a t a t g g c a g a a t c c a c c g a c c g c a g c c t g g a c a c a t c t t g t g 180  
c t g t g a g t g t g g t g t t c c g a t a a g t c c a a t t c t g c c a a t a t t t g t g t g g c c t g t t t g c g 240  
a a g t a a a g t g a c a t c a g c c a a g g t a t t c c g a a c a a g t c t c g a t t t c g t t c t g c a a a c a 300  
a t g t c a a a g g t a t t t t c a a c c a c c a g g a a c t t g g a t a c a g t g t g c t t t a g a a t c c a g g g a 360  
a c t t c t t g c t t t g t g c t t g a a a a a a t c a a a g c c c t c t g a g t a a g g t a c g g c t t g t a g a 420  
t g c a g g c t t t g t t t g g a c t g a g c c t c a t t c t a a g a g a c t t a a a g k t a a a c t g a c t a t t c a 480  
g a a a g a g g t g a t g a a t g g t g c t a t c c t t c a a c a a g t g t t t g t g g t g g a t t a t g k t g k c c c 540  
c a a a t g g g g g g a g a t g g c a t a n a g a n a a c t a a g g a t t c t g g a a g g t t g g a t t a a g g g g n 600  
g 601

<210> 625

<211> 593

<212> DNA

<213> Homo sapiens

<400> 625

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a c t a a c a a a a g a t g g c t a c g a g g g t a a c a t g t t c g g a g g c c t c a g c g g g g c a a c a g t c a t 120  
t g a c t c c c t c g a t a c c c t c t a c c t c a t g g a g c t g a a g g a g g a g t t c c a g g a g g c c a a g g c 180  
c t g g g t g g g a g a g a g c t t c c a c c t g a a c g t g a g c g g a g a a g c a t c c t t g t t g a g g t g a a 240  
c a t c c g c t a c a t c g g g g g a c t c c t c t c a g c c t t c t a c c t g a c a g g a g a a g a g g t g t t c c g 300  
a a t a a a g g c c a t c a g g c t g g g a g a g a a g c t c c t g c c g g c g t t c a a c a c c c c c a c g g g a a t 360  
c c c a a a g g g c g t g g t g a g c t t c a a a a g t g g g a a c t g g g g c t g g g c c a c a g c c g g c a g c a g 420  
c a g c a t c t t g g c g g a g t t t g g a t c c c t g c a c t t g g a a t t c t t a c a c c t c a c t g a a c t c t c 480  
t g g c a a c c a g g t c t t c g c t g a a a a g g t c a g g a a c a t c c g c a a g g t c c t c a g g a a g w t c g a 540  
a a a g c c c t t t g g c c t y t a c t c c a a c t k a g m c a t g g t g t t g c a a a c a g a t c c c c 593

<210> 626

<211> 2272

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2267)

<223> n equals a,t,g, or c

<400> 626

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g g a c t c g c g t c g c g g c g c g g a g a c g t g a a g c t c t c g a g g c t c c t c c c g c t g c g g g t c g g 120  
c g c t c g c c c t c g t c t c c t c g c c t c c g c c c g g c c c c g c g c c c c c a t g g a g a 180  
a g a c t g a g c t g a t c c a g a a g g c a a g c t g g c g a g c a g g c g a g c g c t a c g a c g a c a t g g 240  
c c a c c t g c a t g a a g g c a g t g a c c g a g c a g g g c g c c g a g c t g t c c a a c a g a g a g c g c a a c c 300  
t g c t c t c c g t g g c c t a c a a g a a c g t g g t c g g g g c c g c a g t c c g c c t g g a g g g t c a t c t c 360  
t a g c a t c g a g c a g a a g a c c g a c a c c t c c g a c a a g a a g t t g c a g c t g a t t a a g g a c t a t c g 420  
g g a g a a a g t g g a g t c c g a g c t g a g a t c c a t c t g c a c c a c g g t g c t g g a a t t g t t g g a t a a 480  
a t a t t t a a t a g c c a a t g c a a c t a a t c c a g a g a t a a g g t c t t c t a t c t g a a a t g a a g g g 540  
t g a t t a c t t c c g g t a c c t t g c t g a a g t t g c g t g t g g t g a t g a t c g a a a a c a a a c g a t a g a 600  
t a a t t c c c a a g g a g c t t a c c a a g a g g c a t t t g a t a t a a g c a a g a a a g a g a t g c a a c c c a c 660  
a c a c c c a a t c c g c c t g g g g c t t g c t c t t a a c t t t c t g t a t t t a c t a t g a g a t t c t t a a 720

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atttactact ttctaaagtt tattgatact tcccttttat gtaaaatgta gtagtgatac 2040  
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attggactgc atttcttaga gtgttttact atagatcagt ctcatgggcc atctcttctc 2160  
cagatgtaaa tgatatctgg ttaagtgtta tatggaataa agtggacatt ttaaaactar 2220  
maaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaaa ta 2272

<210> 627

<211> 871

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (863)

<223> n equals a,t,g, or c

<400> 627

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cggcggcggc ggacgagcgg agtccagagg acggagaaga cgaggaagag gaggagcagt 180  
tggttcttgg ggaattatca ggaattattg attcaractt cctctcaaaa tgtgaaaata 240  
aatgcaagggt tttgggcatt gacactgaga ggccccattct gcaagtggac agctgtgtct 300  
ttgctgggga gtatgaagac actctaggga cctgtgttat atttgaagaa aatgttgaac 360  
atgctgatac agaaggcaat aataaaacag tgctaaaata taaatgccat acaatgaaga 420  
agctcagcat gacaagaact ctctgacag agaagaagga aggagaagaa aacatagggt 480

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa t 871
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<210> 628

<211> 779

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (23)

<223> n equals a,t,g, or c

<400> 628

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ttatactttt gtttatctac aacccaataa cagacatgag ggatggccct gtctctctgg 660
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 779
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<210> 629

<211> 1835

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1835)

<223> n equals a,t,g, or c

<400> 629

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ctggcccggg gcaccatgca ttgcaaygac aaagccaaag attcaataga tgctgggagt 360
aaggagcttc aggtgaagca gcagctggac agttgtgtga ccaagtgtgt ggatgaccac 420
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atgcacctca tcccaactat gaccaagaag atgaaggagg ctctcttatac aattggaaaa 480  
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<210> 630

<211> 1097

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<400> 630

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<210> 631

<211> 1537

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<400> 631

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<210> 632

<211> 1901

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1566)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1894)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1899)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1900)

<223> n equals a,t,g, or c

<400> 632

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<210> 633  
<211> 1750  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (809)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (821)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1676)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1689)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1712)  
<223> n equals a,t,g, or c

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&lt;210&gt; 634

&lt;211&gt; 1926

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (13)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 634

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<210> 635

<211> 1346

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (21)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1342)

<223> n equals a,t,g, or c

<400> 635

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<210> 636

&lt;211&gt; 1584

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 636

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gatatagaag ttcaaaaaaa aaaa 1584
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&lt;210&gt; 637

&lt;211&gt; 1663

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 637

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<210> 638

<211> 3947

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (625)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3738)

<223> n equals a,t,g, or c

<400> 638

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&lt;210&gt; 639

&lt;211&gt; 1427

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<400> 639

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<210> 640

<211> 920

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (910)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (919)

<223> n equals a,t,g, or c

<400> 640

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taaagtgggt cgktatagac ctgatatgcc ttgktttctt ttatcaaacc agaattgctgt 540
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aatgcccacg tcgttgagaa tgactcgatc agctactcaa gcagcaaagc aggttcccag 780
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<210> 641

<211> 1706

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1704)

<223> n equals a,t,g, or c

<400> 641

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<210> 642

<211> 2170

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (406)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (811)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2150)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2154)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2155)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2170)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 642

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&lt;210&gt; 643

&lt;211&gt; 1712

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1664)

<223> n equals a,t,g, or c

<400> 643

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<210> 644

<211> 1793

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (790)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1731)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1793)

<223> n equals a,t,g, or c

<400> 644

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<210> 645

<211> 2679

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (24)  
<223> n equals a,t,g, or c

<220>  
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<222> (41)  
<223> n equals a,t,g, or c

<220>  
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<222> (124)  
<223> n equals a,t,g, or c

<220>  
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<222> (128)  
<223> n equals a,t,g, or c

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maaaaaaa aaaaaaaa aaaaaaaa aaaaaaaa 2679

<210> 646

<211> 832

<212> DNA

<213> Homo sapiens

<400> 646

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<210> 647

<211> 1325

<212> DNA

<213> Homo sapiens

<400> 647

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aaaaa 1325
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<210> 648

<211> 606

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (572)

<223> n equals a,t,g, or c

<400> 648

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aatacaagtt tctgatacca ctgcactgtc tgagaatttc caaaacttta atgaactaac 180
tgacagcttc atgaaactgt ccaccaagat caagcagaga aaataattaa tttcatggga 240
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ttaaatgtct tgtttcccag atttcaggaa actttttttc ttttaagcta tccacagctt 360
acagcaattt gataaaatat acttttgatg acaaaaattg agacatttac attttctccc 420
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<210> 649

<211> 1696

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1047)

<223> n equals a,t,g, or c

<400> 649

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1696

<210> 650

<211> 3059

<212> DNA

<213> Homo sapiens

<400> 650

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<212> DNA

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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 652

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<211> 1997

<212> DNA

<213> Homo sapiens

<400> 655

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<212> DNA

<213> Homo sapiens

<400> 656

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<211> 464

<212> DNA

<213> Homo sapiens

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<210> 660

<211> 2549

<212> DNA

<213> Homo sapiens

<400> 660

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<211> 1162

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1155)

<223> n equals a,t,g, or c

<400> 661

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gcccccaaa ggggnccaag ct 1162
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<210> 662

<211> 1178

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (978)

<223> n equals a,t,g, or c

<400> 662

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<210> 663  
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<212> DNA  
<213> Homo sapiens

<220>  
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<222> (25)  
<223> n equals a,t,g, or c

<220>  
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<222> (546)  
<223> n equals a,t,g, or c

<220>  
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<222> (618)  
<223> n equals a,t,g, or c

<220>  
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<222> (639)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (652)  
<223> n equals a,t,g, or c

<400> 663  
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cattgataga ggccagattg tcttggaagt tccaaagttg caacgatttc tggctagtgc 360  
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gaatgagatc agaaattagg 740

<210> 664  
<211> 1670  
<212> DNA  
<213> Homo sapiens

<400> 664

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<210> 665

<211> 3364

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (643)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (898)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1097)

<223> n equals a,t,g, or c

<220>

<221> misc feature

&lt;222&gt; (1470)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1881)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 665

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<210> 666

<211> 1223

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1122)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1123)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1133)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1205)

<223> n equals a,t,g, or c

<400> 666

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<210> 667

<211> 1997

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1289)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1951)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1974)

<223> n equals a,t,g, or c

<400> 667

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&lt;210&gt; 668

&lt;211&gt; 586

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 668

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&lt;210&gt; 669

&lt;211&gt; 1097

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 669

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<212> DNA  
<213> Homo sapiens

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&lt;210&gt; 671

&lt;211&gt; 987

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 671

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&lt;210&gt; 672

&lt;211&gt; 2825

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 672

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tcgag

2825

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<212> DNA  
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>  
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<222> (1046)  
<223> n equals a,t,g, or c

<220>  
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<222> (1409)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

&lt;400&gt; 673

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aanttaaaaa aaaaaaaaaa

1430

&lt;210&gt; 674

&lt;211&gt; 1125

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1098)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1103)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1120)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 674

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gaacaccttg gaagctgtat cactgacaga gagcagtgtc tccagagttc ctctgcacc 660
tgtgtctggg agtaggagc ccaactcaca gcccttgccc acaactatac tcctgtccca 720
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tcttgtgatg gggccaatga gtcaattgaa ttcattgggc aaacaggtcc catcctcttc 1080
aaaaaaaara aaaaaaancc cngggggggg cccggaaccn aattc 1125
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&lt;210&gt; 675

&lt;211&gt; 1077

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (523)

<223> n equals a,t,g, or c

<400> 675

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tgtccaccgg cgcttcctcc agttgctgat gacccatggc gtgctagagg aatgggacgt 180
gaagcgcttg cagacgcact gctacaagg ccatgaccgc aatgccaccg tagataagtt 240
ggaggacttc atcaacaaca ttaacagtgt cttggagtcc ttgtatattg agataaagag 300
aggagtcacg gaagatgatg ggagacccat ttatgcgttg gtgaatcttg ctacaacttc 360
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ggaactgatt attgactcag aaaccggctt tgcgtcttcc acaaacatat tgaacctggg 480
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cctggagatg garcaatata tccgggagac gtaccccgac gcggtgaaga tctgcaatat 660
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taaaccatcc tgggaagttr aaaaaaaaaa aaaaaaaaaa tttggggggg ggggcc 1077
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<210> 676

<211> 920

<212> DNA

<213> Homo sapiens

<400> 676

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aaggcaagaa ctagcagttc gggaaagaca acaggaagta actagaaagt cggctcctag 420
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agctaccctt gttggcaaag gaacggagaa cacttttctt tcaccgaaag ctataccaaa 540
tggttttggg accagtccac taactccctc tgctaggata tcagcactaa acatcgtggg 600
gggatctctt acggaagta ggggctttag aatccaaatt agcagcttgc aggaattttg 660
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atggcaatgg cacaaagttc tctcgatcag ggcatacatc tttcttcgac aaaggggcag 780
taaacggctt tgaccccgct cctcctctc ctctgggcag ctgtatagga tcatcatgtg 840
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aaaaaaaaa aaaaaaaaaa 920
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<210> 677

<211> 1247

<212> DNA

<213> Homo sapiens

<400> 677

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tgagccaccc tggactactg gttcagtaga ggggtgagtc aagcaatatt tgaggacggg 180  
atataaacag tatttcttaa agttgtcacc aatttttccc ccgatgaggc cattccagac 240  
ccaaattagt cataacagag ccaggacaat aatcacatct cctgattctg agcctgaatg 300  
cttcccacag gactgcgtcg ctcccaatgc tctgaggtcc attgtggggg aaagttgcca 360  
ctgggattcc acctcaaggc ctggggacca agcctccagg attcctcttg agactcctcc 420  
actatttcat taccatcccc ccacatcttc tagtgctatg ccctgggtcc ctttggaatc 480  
ctctcaatcc caaagaaggc ctctaccac ctctaaggca tcaaagggtg tagaaagtgc 540  
cccaagactc aacagggcac ccacatctac atagaagaca ctggtgcctg gtgtgtaggt 600  
gctcctggct ttgcagtagt cggtcaggag gtttttgaac cgatagcaac attgctccag 660  
gggtccacag aagccatgtt ctacagctg ctacagccata atccggtaca cctgggtggt 720  
tcgatggcag gtgcggagtt tttcgtggat ccargcctct gagaattccc agaaaaatct 780  
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cagctcgtc caggytttg cttttctcca gattagcacc tggccagact tgactctcac 900  
cccagccact gagcagtctt tcacactctc tttttctcca gaatttgaag atctagatgc 960  
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gtttgcaggc agacaaaagg gagatgtaat ggtttggtaa atctaattcc aaccatttta 1080  
tatgccagrg agaggagata gtaatttttt tttttaattc tggggggatt cttgggaaag 1140  
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<210> 678

<211> 2667

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2602)

<223> n equals a,t,g, or c

<400> 678

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gctaggccga gtccaccgcc cgagtctgct gcccagagcc gcgttacgca caaagccgcc 120  
gatccccggc ctgggggtgag cagagcgacc accgcccggg agcagcgagg cgagacgcac 180  
ggtgcgccct atgccccgc gcccccaccg ccccgccgc ggcagccgaa gcgcagcgag 240  
agaacgcgcc accgcggggc ccgggtgcag ctacgcagcc tctcgccacc tgcgcgcagc 300  
ccgaggtgag cagtgcgcgc cgagcgggag ggcagcgagg cgttcgcggg cccctcctg 360  
ctgcccgggc ccggccgctc atggcggcca tccgcaagaa gctgggtggtg gtgggagcag 420  
gcgcgtgtgg caagacgtgc ctgctgatcg tgttcagtaa ggacgagttc cccgaggtgt 480  
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tggtggccaa caaaaaagac ctgcgagcg acgagcatgt ccgcacagag ctggcccgc 780  
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cagtcccccg cgagcccggg gaaggggaga cccgtgtccc acaaggacce caccggcctg 1080

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tcttgatttc attcatctgt gtgtctt 2667
```

&lt;210&gt; 679

&lt;211&gt; 952

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 679

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gggcgcgagg ggcggagctt gtggaggaag atggctgccg cctggggggtc gtccctaacg 120
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gaagaacctg gaattagtag aattctagaa gtttacttct aatcatgtcc ctctcaattt 660
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<210> 680  
<211> 2309  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (4)  
<223> n equals a,t,g, or c

<400> 680  
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agccaatttg tctctcttga ggaggcctgg agagaaaact tacacacagc gatgtcgggt 180  
gtttgttggg aatctacctg ctgatatac ggaggatgaa ttcaaaagac tatttgctaa 240  
atatggagaa ccaggagaag tttttatcaa caaaggcaaa ggattcggat ttattaagct 300  
tgaatctaga gctttggctg aaattgccaa agccgaactg gatgatacac ccatgagagg 360  
tagacagctt cgagttcgct ttgccacaca tgctgctgcc ctttctgttc gtaatctttc 420  
accttatgtt tccaatgaac tgttggaaga agccttttagc caatttggtc ctattgaaag 480  
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<210> 681  
<211> 451  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (370)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (419)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (428)  
<223> n equals a,t,g, or c

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tgcctgtnc c gggccaagct tcaagcaatc c 451

<210> 682  
<211> 1298  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1294)  
<223> n equals a,t,g, or c

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ggaggtgcag cccccgccca agcggcggca gaaacgagac accacacaca acctgccccga 480  
gttcattgtg aagttcggct ctcgcgagtg ggtgctgggc cgcgtggagt acgacacacg 540  
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catcgcggtg tctgtctact gctactggag gaagagccag caggccgaac gagagtatga 660
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<210> 683

<211> 859

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (420)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (793)

<223> n equals a,t,g, or c

<400> 683

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tgaggagagg attagtgact taacgacaaa tcttgacagaa gaggaagaaa aggccaaaga 180
tcttaccaag ctgaaaaaca agcatgaatc tatgatttca gaactggaat gcggctaaag 240
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cagaagaaca atgccctgaa gaagatccgg gagctggagg gccacatctc agacctccag 480
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<210> 684

<211> 1251

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1249)

<223> n equals a,t,g, or c

<400> 684

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<210> 685

<211> 2600

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1905)

<223> n equals a,t,g, or c

&lt;400&gt; 685

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&lt;210&gt; 686

&lt;211&gt; 4641

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 686

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<210> 687

<211> 400

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (370)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (380)

<223> n equals a,t,g, or c

<400> 687

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<210> 688

<211> 2751

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (528)

<223> n equals a,t,g, or c

<400> 688

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&lt;210&gt; 689

&lt;211&gt; 969

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 689

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969

&lt;210&gt; 690

&lt;211&gt; 979

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (376)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (943)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature



<222> (945)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (957)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (959)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (969)

<223> n equals a,t,g, or c

<400> 690

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aagtgtcctc cgcagctgga actggggcct gtgtgggtac tttgctttct accatgccct 120
ctatccccga gcctggactg tctatcagct tcctggccag aatgtcacc tcacctgccg 180
tcagatcaca cccatcttgc cccatgacta ccaggacagc agcctgcctg taggagtctt 240
tgtgtgggat gtggaaaatg aaggggacga agctctagat gtgtccatca tgttctccat 300
gcggaatgga ctgggtggtg gagacgatgc cccagggggt ttgtggaatg agcccttctg 360
tctggagcgt agsgngngaa actgtccggg ggctgtcctt gcatcatcca acccttccaa 420
accctacac gatggctgtg gctgcacgag tcacggcagc taccacggtg acccacatca 480
cagcctttga ccctgacagc acggggcagc aggtgtggca ggatctactt caggatggac 540
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```

<210> 691

<211> 693

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

<400> 691

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cgtggggccc ccggttgccg cccctngga aaaaggcatt gctggctctg aagaagcaaa 60
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tggacacagc cacagcaaca gagcaggcaa agcagctggt gaagtcagga gccatcagt 180
```

```
ccatcaaggc tgagaccaag aactcaggct tcaagcggtc tcgaaccctt gaggggaagt 240
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ctgatgatga cctgcaagag tcatccagac gtccccagag gaaatctctg tatgrgagct 360
ccctcgctgt ccagaacagc cctaagggtt gccaccggga caagaggacc cagattgtct 420
acagtgatga cgtctacaag gaaaaccttg tggatggctt ctagggaaca gagctggatt 480
ccttgtgcct catatgcccc aatgctgggtc tcagtaaaac actgagggtg aagcttacac 540
atctccctca gcctctggtt tttcagcact tgggattggg gttaaaccct taaaaacggc 600
tgtcagggtt gatctcagt taacaacatg gccagtgcct gttccccact cccttgcccc 660
aaaaggattt ggaacccaaa aaaaaaaaaa aaa 693
```

<210> 692

<211> 1382

<212> DNA

<213> Homo sapiens

<400> 692

```
gccactcgc tgcggcgctt ctggtccag accgccctcc ggatcggacc ctgcgaatgg 60
ttttggctat atcttcatgc tgggttcat caccaggcct cctcacagat tcctgtccct 120
tctgtgtcct ggactccgga tacctcaact ctcagtactt tgtgtctcagc ccaggccag 180
agccatgggt atctctctt cctcctgcga actgcccctg gtggctgtgt gccaggtaac 240
atcgacgcca gacaagcaac agaactttaa aacatgtgct gagctggttc gagaggctgc 300
cagactgggt gcctgcctgg ctttctgccc tgaggcattt gacttcattg cacgggaccc 360
tgcagagacg ctacacctgt ctgaaccact ggggtggaaa cttttggaag aatacaccca 420
gcttgccagg gaatgtggac tctggctgtc cttgggtggt ttccatgagc gtggccaaga 480
ctgggagcag actcagaaaa tctacaattg tcacgtgctg ctgaacagca aaggggcagt 540
agtggccact tacaggaaga cacatctgtg tgacgtagag attccagggc aggggctatg 600
tgtgaaagca actctaccat gcctgggccc agtcttgagt cacctgtcag cacaccagca 660
ggcaagattg gtctagctgt ctgctatgac atgcggttcc ctgaactctc tctggcattg 720
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gccactggg aggtgttgct gcgggcccgt gctatcgaaa cccagtgcta ttagtgaggca 840
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aa 1382
```

<210> 693

<211> 3098

<212> DNA

<213> Homo sapiens

<400> 693

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caaataggca aaataacact ttatcattat cattgggtcat atacctagtg catttgtcta 60
tgatatgttt ttgagtatat gacactgaaa tattagtgtg tctatgatac taaatcattt 120
ttatatggct aaaatcatct tcagtaagaa ctctcttagg atatgaattt aagtgaatat 180
ttactgtcct ttttttaaaa catgatgaaa cagtaatcta tagagcaatt tcattagtat 240
```

atgtgagtaa tgatggttta gttaaactcta caggctgggt aagggtcat aagaaagctt 300  
ctaaagctct gtgctttgtg ttctctgtg aatgtccatt ctacttctct ttctaataat 360  
gcatgctttt ctttttgtaa acaaaatgtt gacttcatgg atcaattaaa gagaattgta 420  
aaaacctaata ttggcttcag ttaacagtta aaaaaaaccc cttcaattgg aagaaaaaaa 480  
aatttaattc atagatttca atccacacaa aatcatgtcg tcttctctgt ttacacctaa 540  
tgrctaacct taatctctaa accattaatg ggggtgattct aatttctgtc ttcttttccct 600  
ttttcttccct gcatcccatg ttgtctgtgg tggtttgtgt ggttggaactc tcccctgggc 660  
agtattttta tttccaggag gtgttccctg tcttggctgc aaagcactgt atcatgcagg 720  
ccaatgctga gtaccatcag tctatcctgg caaaacagca gaagaaattt ggagaagaaa 780  
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aagccacact tgtgaaatct accccgggtca atgtacccat cagtcagaaa tttactgac 1020  
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agaatttagc tactgcatat gacaactttg ttgaacttgt agctaatttg aaggaaggca 1980  
caaagtttta caatgagttg actgaaatcc tggtcagggt ccagaacaaa tgcagtgata 2040  
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gacatgcacc aactcctcca actccagcgc caagaaccat gccgcctact aagccccagc 2220  
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ctcctccaca ggcgagggga ccacctatc ccacctatcc aggatatcct gggatttgcc 2400  
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caccagtgtg taccagaggt cctggacagg ctccataccc gggaccccag cagccttcat 2520  
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catgggtggg acatcagata cttacaaaga tggtttaagt atggatacta gagaaaatta 2940  
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tcaaggcact gtaaatctta taattttaaa ataaattact taagaacaaa aaaaaaaaaa 3060  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaagg 3098

&lt;210&gt; 694

&lt;211&gt; 489

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<400> 694

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gaaagtctac ccgcctcctt gtgacagaag tgcgactgcc agctgccgag gcgttcggtc 60
ctgctgttgc ggccgctgcc ccagggtgc ggggacgctc ccggagccct gcctgttccc 120
tgtccatcca ggccagcagc tgaaggagcc tcacctgect cccttctctg agtagcacgg 180
atttraggag aagcagcgaa gatgtccagc gaggctcccc ctccctatcc tgggggcccc 240
acagccccac ttctggaaga gaaaagtggg gccccgcccc cccagggccg ttctcccca 300
gctgtgatgc agccccctcc aggcattgcca ctgccccctg cggacattgg cccccaccc 360
tatgagccgc cgggtcamcc aatgccccag cctgggttya tcccaccama catgagtnca 420
gatgggmact acatgcctcc gggtttttta cccttcttca ggggccccca cccacccttg 480
gggtaatta 489
```

<210> 695

<211> 1844

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<400> 695

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gaaattttaa tgacatccta gaggtagaga aaccgtggag atcgcttttc tcagactcac 120
caacttttaa tgggatttca tggggtttgg ttgtgctgat agggtaaggg gaggtgctt 180
tctgcccttc tccccactcc catctgattt acttaattca gtctcagctg ctgaaatttg 240
gaaaggacca aattgcttta cagttttttt ctttgtgtag tatcttgaaa tcctggaaaa 300
ttctatggaa tagttctgta tatagggcac aagtaaaggc attgtccaaa gtttatttat 360
ttatttatta ccctaagaat gctttgccat aaccacattt aatgggaaaa acggcagtat 420
cacagatgta aattaactca ccagatttac tgggcctgaa ctcatctctt tcttgctata 480
tgatttagca agttctagaa ggtctccaag acaataatta cattggcaca atgtatactt 540
cagtgtcac ccgtaggcaa atctcttttt aaaaaactct ttggtgcaca agtaacacat 600
ttggccacaa aacaccaaag aattgtaggc agtggccccct attgagaagt tttccggtag 660
agttggaaat cagttgtgaa tacattcttt gctagttgga gtgcttgttt actaagcatg 720
tgccgtcgta ggtattagtg ctagtctcaa ataggtgctt cccctgaggt gcaggggaag 780
accaaagtgt gcaactcgaa ctgctttcgt ccattgtttct cacattgctg tatttttagaa 840
aataggggtt aagactgata acaacctttt acattgtgac tgtgtttgca ttgtctaatg 900
acagataaat ccttaacatt tctctccacc ttagtacttt agactaattg tgtttgcctg 960
```

```
tccatgccat gaatgagtg gctgtagttg ggcctaaata aatgagctgt tggaagaaaa 1020
gaatcacagt actttccagc agtcagtcctc tgggttcctag atgtgttcta agcaatgcaa 1080
atgtctaat gtccccagc gggcatagtc agtgctgctt atattgtagc agttacagct 1140
ctgtagttta tgatgcaaat ctgccaagag agatgtatgt gtcactgcat ggcttctgaa 1200
agcaggatga attttctgca gctgtttcaa agttggggtc tgttcttgaa tcctctatta 1260
attactgtgt gtgagccaga gggagctgtg gtaagggttg ggccccagc ctgtagggaa 1320
ctttctggac tccactcctt tgaatcgata taggcatttg gtctcactac ttgaccattc 1380
tcacctgtg aaacgtccca cactttgaag caaatacaat tcacagcaca gtacacacaa 1440
aaaccttggc ataagacaga gaaggctcct cttattttgt gggctggttg ctgtagaaac 1500
acataacaaa gggcagccct ccacttctg tataattgtg tagcccctt tctttgggct 1560
tgacacctgt ctgaataag agtgattaga gctgcataat gtccctctct tggctattga 1620
ccatgtggtt cagctacaaa actctgtata agttgaagga aaatgttcat gttcatatgt 1680
acttgtttgc tatgactaca ttttgaggtt ttgtaaaact gttatttttt tttttttcac 1740
aatgtgaaac tgaagggtcaa taaattatta gagattttct cttcaaaaaa aaaaaaaa 1800
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaggggg gggg 1844
```

<210> 696

<211> 605

<212> DNA

<213> Homo sapiens

<400> 696

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cctgcactac tctgtcaaat taaaaaatat aatagctatc tttatttctca ttttaaagca 60
tgataatcat caaaatgttg aagtttatca cagttctaca ttaaaaataa gtcatttttg 120
taggtgagtt atccaatata gcaaaggcca tcaaagagaa agccaatact ttcattggaga 180
gctcagagcc ttaatagatc ccagcagcaa tgcttcaacc attcccaact ccatgttcct 240
tgctagatgc tcctcacccc aaactcctgc aaatttcaag aatttctgtg tatgwtgtg 300
ttaagggagg agttttaaag tatctctgta ttcaacaaga tacgtcagct tgtaagcagc 360
agaaacctac ttaactakc ttacatgaga aaataacatt ataaagacat aggagtgttt 420
ctacaccaag agctggaggt attgtttggt ttcattgaagg gttaaaatct gtaattccaa 480
aagtaggact tcaggcagct gcaccatcaa tctgtgtcct tctctcwggg actgtgggac 540
tctatwcccg tctgacttgc tttggttccc ggggcacatc tcttggtttt gggaaaacac 600
acttt 605
```

<210> 697

<211> 540

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (113)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (114)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (488)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (489)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (534)

<223> n equals a,t,g, or c

<400> 697

```
agggcacact agggacctac cgtacaacac ttcagcattg ttaagcactt aaccatttga 60
aaaaacttaa tgaaatgatt aatttttttt ttaattttac tgaaggatgt atnnatagat 120
ttaggagggga tatgaggggtg actaaaaagt taaatttttc taatgtgaac ttttatttat 180
gttggttgtt atcttacaat ttgtaatttt aaagtcattg taggccaatg raatgtgagc 240
gcctcaagaa tagctattaa gtatcatact aaatttggcg gacgtacaga tctgtgttac 300
aaagaaatgg aaaagtcata cctgtgtcac ggggatgaaa agcctgctag ccattccaat 360
tgactgagra catcttgcaa agaaccacc ttacttctgc cggtacagcc ttgggcaaat 420
taaagtcatt tcaaataaat ttagtagtaa gtcccttwt acmaatagtt atgtgtccac 480
acacgtgngg aatgttttat gggaaactaat ggaagcgagc aaatcccaga aggttctctg 540
```

<210> 698

<211> 496

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (271)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (477)

<223> n equals a,t,g, or c

<400> 698

```
ggcagagggg agactcagct gatactgctt ccttgagatt taatacacct tcctttgatc 60
tctcctgtcc ccattatccc aggaaaatcc agagtagctt ccagtcatt ctcattaatc 120
cactggatcc aaagtttaga gaggttcccc ttccctccag cctccttccg ggcccaacag 180
aggagcacc caccaccctc catcagctgc tcaaaaccca caagggaaaa atccctacag 240
gtccatgccg ggaggttagt gagctaccct ncaggttcca ttaagtcata ccagaaggct 300
gagtgtagaa atgaacatta agaggggttc catctgtagg gaaaggggtc aagatgcaaa 360
gctttacaga aggttctccg tctaattgtg aagattaaga gcactggtgg acctaggaag 420
atgaagaatg gagagtggg aaaccagcag agattttcag gaatgtttta gggggcnttt 480
tcatcgtttc aaagca 496
```

<210> 699

<211> 987

<212> DNA

<213> Homo sapiens

<400> 699

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ggcacgagct caactgcaag gacgctgtaa gcaggaagag aagccacagc gcttcagaaa 60
agagtgggac agggacaagc atatctaaga ggctgaacat gaatccacag atcagaaacc 120
cgatgaaggc aatgtatcca ggcacattct acttccaatt taaaaaccta tgggaagcca 180
acgatcggaa cgaaacttgg ctgtgcttca ccgtggaagg tataaagcgc cgctcagttg 240
tctcctggaa gacgggctgc ttccgaaacc aggtggattc tgagacccat tgtcatgcag 300
aaaggtgctt cctctcttgg ttctgctgac acatactgtc tcctaacaca aagtaccagg 360
tcacctggta cacatcttgg agcccttgcc cagactgtgc aggggaggtg gccgagttcc 420
tggccaggca cagcaacgtg aatctcacca tcttcaccgc ccgcctctac tacttcagtt 480
atccatgtta ccaggagggg ctccgcagcc tgagtcagga aggggtcgtc gtggagatca 540
tggaatga agattttaa tattgttggg aaaactttgt gtacaatgat aatgagccat 600
tcaagccttg gaagggatta aaaaccaact ttcgacttct gaaaagaagg ctacgggaga 660
gtctccagtg aggggtctcc ctgggcctca tgggtctgtc cctctagcct cctgctcatg 720
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ctcctggcct cagggccatt ccacagtgt cccctgcctc accgcttct cctcgtcttt 840
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ccccgttctt ccagcctgctg tgcacctaac ctggcttttc ccattctccc agcataacca 960
aatcttacta aactcawsct aggtggg 987
```

<210> 700

<211> 1675

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1616)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1635)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1659)

<223> n equals a,t,g, or c

<400> 700

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gggaggcacc cagttgaaaa cagaaaaaat acatatgttt ttgttagctc cmgtggcaac 120
agggatcaac agtcacaatg atagaggaag gggcattcaa ggaaccatta atgagcaatg 180
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ccgctcagga aagtattact tttagacaa ctactttgac ctgccaggag ctcttctgtg 360
tgccagggtg gtggactatt taacaaaact gaacaatggt caaaaaacat ttgatttttg 420
```

```

gaaggatata gttgctgcta tacaacacaa ttataaaaatg tcagcttttta aggaaaactg 480
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atctgtgaaa aaatggcttc gacagctaaa gaatgctggg aaaattcttc tgtaattac 600
cagttctcac agtgattact gtagacttct ctgcgaatat attcttgagg atgattttac 660
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tttcccagct cgctactata gtaattggga gacagtcctc atcctggaag aactcagagg 960
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atatgagggg ccaaaaagcaa aacctttaaa tacttcatct aaaaaatggg gctctttttt 1080
tattgattca gttttgggac tggaaaatac agaagactcc ttggtttata catggtcttg 1140
taagagaatc agtacttaca gcactattgc aattccaagt attgaagcaa tcgcagaatt 1200
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tcctaaaact taggaacctt attggatatt ttctattaca gtagttttgt ggttgggatt 1560
cacccggggg ggccacacac tcacacggca cagttcactc ttacacata tggccncggt 1620
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```

<210> 701

<211> 556

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (454)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (502)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (505)

<223> n equals a,t,g, or c

<400> 701

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ttaacccccc agtctacttt tttttctggt gcagacctta agacaatgta gtaatacgtc 60
ttttacccat cccccaata acagtgtaca cagtgtgttt tttcccttta gtggagttag 120
cagtatgtta gtgaggttag gtgagcatct agatttggtc cacagaaaag ggtgtttcca 180
gccagtatca gtgatgttggt tacttctcca acagtctaaa tctaagggtt ttaggagcct 240
gttygattaa gtgataagaa gataccctcg tctgggtgtt ctttcagtgc tgccctcttca 300
tcttttagca gaaggcacia atgcctttta ttgtctccgt ggtgaaaagc ttccagttct 360
caataggcac aggatgtcag tggccacagt tgggtgtaagc ctgttcagag tcttctaatt 420
tgaaactgta gtggtgttta gtttataaag ctanaagaag aatctgtgga ggggtctggaa 480

```



ttgtatttgt gtggtgaaat tngtnacttt tagatgagga aagaaaacct ttgcttttgc 540  
ccaaaacctg tgccag 556

<210> 702  
<211> 1138  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1074)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1096)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1138)  
<223> n equals a,t,g, or c

<400> 702  
gccaaagcga gaatgggggac ttagttcctg tcccctgagc ttcagagAAC acaaaaacct 60  
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cacttcctgg gctgggggacc tcacagtttc ctgttcctgc cttgaggccg ggcaaacgca 180  
gcaccaactg ctccccacag gtgcacagcg tgggtgctgtc agagcgggac ctgcagcggg 240  
agatcaaggc ccagctggcc cagctgcccg attccgcgcc gggacccccg ccccgccac 300  
aggtccgcct cgccggggcc caagccatct ttgaggcca gcagctggca ggagtgcgac 360  
gaggcgccaa gcctgagggtg cctcgattg tgggtgcagcc cccggaggag cccagaccac 420  
cgcgccgga accccagacc cgcggaaga ctttccatgg gtcctgact cgggcccggg 480  
gccccccat cgagggggccc cccaggcccc aacgaggctc cacctccttc ctggacaccc 540  
gcttctgaga ggaccatgga cttagtgctc cccagctcctc attgcctgat ggctgatgcc 600  
agcccggaat ataggcaccg cactttactc ttgggactcg gggacttggc ttccttcctg 660  
gcaaggacca ggagtgaggg aaggaggagg tctccgtgg tacatactgg gtcaggcact 720  
agcatggagg agggtcacag agtggggcac gtgaggacc atggaaccgt cctgggtgcc 780  
aggccctcac aagtaccaa gccagcacca aaggagtcag ggaaggggtt ggctgagtca 840  
agggacccca gagggcacca ggaataaaat cttcttgaac agaaaaaaaa aaaaaaaagg 900  
gcggccgctc tagaggatcc aagcttacgt acgcgtgcat gcgacgtcat agctcttcta 960  
tagtgtcacc taaattcaat tcaactggcg tcgttttaca acgtcgtgac tgggaaaacc 1020  
ctggcggttac ccaacttaat cgccctgcag cacatcccc ttcgccagc tggnttaata 1080  
gcgaagaggc ccgcancggt tcgcccttcc cccacaattg cgccctggaa tgggcgan 1138

<210> 703  
<211> 1062  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature

<222> (1044)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1061)

<223> n equals a,t,g, or c

<400> 703

```
cactgtgtgg agggcacctc tctgtccctt ccgtgtctca ctgtctctgg aagcttcagc 60
ccatgtgtgt cctgggtgtc ccagcccac cagagcccg gcccggagct gacagctttc 120
acgcttaagg cacgtgtgac ctgggtagtc agacaccact tgagcccctg cccacatctg 180
ctggtttggg gcttcagtgg ggagctgaca gctgtgagca caccactgtc ccctcatcca 240
cctcggcctg catggggcac ccacttcctt ctgggtgggg cttccatggt aagggggcct 300
gcgtccctgc acactgcgag gactgccttg cacaggccca ctccctacga cacgtgactc 360
gttttagagc tctgtcccag aggcgttcgt atgtgacca cagatggcgt caatgtgaac 420
acctctcttt gtgctgaatt tctgggccat tcttttcctg tcttatttct aaatttcctt 480
cttccaagat gaaaacaaaa gaaaaactta aaacagaagg tattaaaaaa acaagagatt 540
cccaccatta tttaggttca cctgcaraac aaaaatctta ctccarcccc tcaatgccat 600
cctgacacac ttatgcaaa aagaattttc ccagataggc tagccagaaa aaacttcaag 660
tcctctgtaa catctgaggt gaccaagagg cagaagagca gagcagtcgg gggccgtgtc 720
ctggctgata ccaactgcag ctctgctgtg ggggcccggt ggagggaggc agaccctgg 780
gctttcctgc tggccacgga gactctgctc ctgcatggaa agggagcctg ggagccagca 840
gcccacgcct ggggagcctg cctggggcca tgtgaccatg gcctctccct gggaacgggc 900
tgaccacaac acaccctgct gccatccact tctgtttact ctgcaaagt aagaaagaac 960
cacttgacca gaagtgtccc ccagatgstt tttttttttt tttttgggag acagttttgc 1020
yyttgyttcc cggytggagt gcantggcat ggatctaact nt 1062
```

<210> 704

<211> 865

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (685)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (831)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (847)

<223> n equals a,t,g, or c

<400> 704

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gagagaacta gtctcgagtt tgtttctctt atatgccac cattttttca tatatatatg 60
atttgatttt atatacacat atgtatacat attatatata aatatatatg tgtatacata 120
```

tatgtgtgta tatctatgaa tcaaacatac tgtttctggt ggagatgggt cagaattata 180  
aagattatct gaatctttat ctgtgagcag tctccaagka agaagttgmr aggtgaagcc 240  
tttgactgct gtcattgtctg aggtcattcc aaggacatgg gagactgctg tccatgggtg 300  
gaccccttta acatcagcag agttctgtca agttacttag ctttcactgg ggcagctcta 360  
gcattccatt aattcaaaat gktgtcctta atataagcct ctamcattta aaataaaaaat 420  
tttaaatgta tccattaagg gaataattac atattgaatt cctaagaaat aagaattatt 480  
tggtgtgttt tttctagata gaataaacac aagagctgga ctatattaac tgttgtatac 540  
acttttttaa ctggcatttt yagttacttg tgatttttcc agggaaaaata aaaatgaatt 600  
aaagtggaa acgtggacttc taattgggtt tgtcttttga ttacatttga ccatcaacaa 660  
tgatgtaagc cttggataga atgtngcccc tcagtgtccc acttaaatat cttggtaaac 720  
ctttggtgta tacacttcat tgtgtttttt ggaatgactc taaaagccca taaactaatg 780  
ctttgcaaag cctaaataaa atgtgttgca gcctgtatta ggaaccactt nccttttatg 840  
gtcctgnatg taaatagggg gtttt 865

<210> 705

<211> 1383

<212> DNA

<213> Homo sapiens

<400> 705

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ggctcctcgtc cagaccggcc accggagctt gacctcctgc atcgaccctt ccatgggact 120  
taatgaagag cagaaagaat ttcaaaaagt ggcctttgac tttgctgccc gagagatggc 180  
tccaaatatg gcagagwggg accagaagca tgtgtgcctg gatgattgat agcttcggaa 240  
atgaggaaca gaggcacaaa ttttggccac cgctctgtac catggagaag tttgcttcct 300  
actgcctcac tgaaccagga agtgggagtg atgctgccts tcttctgacc tccgctaaga 360  
aacaggggaga tcattacatc ctcaatggct ccaaggcctt catcagtggg gctgggtgag 420  
cagacatcta tgtgggtcat tgccgaacag gaggaccagg ccccaagggc atctcatgca 480  
tagttgttga gaaggggacc cctggcctca gctttggcaa gaaggagaaa aaggtggggg 540  
ggaactccca gccaacacga gctgtgatct tcgaagactg tgctgtccct gtggccaaca 600  
gaattgggag cgagggggcag ggcttcctca ttgccgtgag aggactgaac ggaggaggga 660  
tcaatatatg ttctgtctcc ctgggggctg cccacgcctc tgtcatcctc acccgagacc 720  
acctcaatgt ccggaagcag tttggagagc ctctggccag taaccagtac ttgcaattca 780  
cactggctga tatggcaaca aggtgggtgg ccgcgcggct gatgggtccgc aatgcagcag 840  
tggtctctgca ggaggagagg aaggatgcag tggccttggt ctccatggcc aagctctttg 900  
ctacagatga atgctttgcc atctgcaacc aggccttgca gatgcacggg ggctacggct 960  
acctgaagga ttacgtgtgt cagcagtacg tgcgggactc cagggtccac cagattctag 1020  
aagagctgtt ctggcagggg cctggagtcc agagccgcag ctctcgtctt ttcggggggc 1080  
ctcagattcc tctgtgtctg cctttttcct ctggagatct gcgagaaggg tgaactgaga 1140  
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acgtggttct cagggatcca agaacagtga tggacaaggc aaatgtgagc cagtatgggtc 1260  
atcagtagct ctatattgat tatcagccag atggcctaaa agatacctgt ctcaatatta 1320  
ctagtgtatt tttcaataaa ataaaccatc actaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1380  
aaa 1383

<210> 706

<211> 1155

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (36)

<223> n equals a,t,g, or c

<400> 706

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agaggaggaa caagaagatg aggaagaaat cgatgttggt tctgtggaaa agaggcaggc 120
tcctggcaaa aggtcagagt ctggatcacc ttctgctgga ggccacagca aacctcctca 180
cagcccactg gtcctcaaga ggtgccacgt ctccacacat cagcacaact acgcagcgcc 240
tcctccact cggaaggact atcctgctgc caagagggtc aagttggaca gtgtcagagt 300
cctgagacag atcagcaaca accgaaaatg caccagcccc aggtcctcgg acaccgagga 360
gaatgtcaag aggcgaacac acaacgtctt ggagcgccag aggaggaacg agctaaaacg 420
gagctttttt gccctgcgtg accagatccc ggagttggaa aacaatgaaa agggcccccac 480
ggtagttatc cttaaaaaag ccacagcata catcctgtcc gtccaagcag aggagcaaaa 540
gctcatttct gaagaggact tgttgcgga acgacgagaa cagttgaaac acaaacttga 600
acagctacgg aactcctgtg cgtaaggaaa agtaaggaaa acgattcctt ctaacagaaa 660
tgtcctgagc aatcacctat gaacttggtt caaatgcatg atcaaatgca acctcacaac 720
cttggtgag tcttgagact gaaagattta gccataatgt aaactgcctc aaattggact 780
ttgggcataa aagaactttt ttatgcttac catctttttt ttttctttaa cagatttgta 840
tttaagaatt gtttttaaaa aatttttaaga tttacacaat gtttctctgt aaatatigcc 900
attaaatgta aataacttta ataaaacgtt tatagcagtt acacagaatt tcaatcctag 960
tatatagtac ctagtattat aggtactata aaccctaatt ttttttattt aagtacattt 1020
tgctttttta agttgatttt tttctattgt ttttagaaaa aataaaataa ctggcaaata 1080
tatcattgag ccmaatctta aaaaaaaaaa aaaaaagggtc gagccggccg gctaattagt 1140
agtagtaggc gccgc 1155
```

<210> 707

<211> 1417

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1378)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1392)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1399)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1404)

<223> n equals a,t,g, or c

&lt;400&gt; 707

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tgagaccctg tctcaataat aataataata ataataatag taataatgaa gtaaatggga 60
taaggaaaga argataatta tctttaaaagg ttgattccca cctccctcc ccagttactt 120
aaggaaactaa gtgagtacat ctccagttgc ccatgaaagc ataagtttgt tttcctcagc 180
tgaggcaagt ggtagagtat acaggataac gaagtaacat gtaaaaggca ggacgcacat 240
aaaggtgtac atggctattg tttcacctgg agaaaccaca tgattgggac ctgaagggtt 300
actgactgac tacaggggct gatttgtgaag cacgaggaac cccatgtgtg tggagactgt 360
aggggtgagag cacacaatta ttagcatcat ttctgagtga tctcacagat tttttttctt 420
gtgtttgttt tgctttttga caactgcttc tcccacgttc cttgcaattc tattctctca 480
ccttcacttt actattttgta ttcgatggac caggataatt caggcaagggt taccttgtaa 540
acttgaattg gccacacacc atgttgtcac ccagctggct atgaagtga taatggtact 600
gaaagtaaac ctgaagacct ttctcagatc tattttaagt ctgagtctga ccaaccatgg 660
aaaatattcg acatgaatta atgtagagaa ctataaagca tttatgacag ctccaagaaa 720
aatcatctac tctatgcagg agatatgttt agagacctct cagaaaaact tgcctgggtt 780
gagggtacac agtaccattt taatcttctg aaaatatctg tattcctgct ctttttctgc 840
tgtcactgtc aatctgctat atttttctact atcctattaa aatattactg tctcctttat 900
ctgttcaatg tccatatttt aaaaaaatct tccttgatg agctattctg atccaaataa 960
tttctctgat atttctctat atggctccca caacaatttc attgttggtta gcataatctat 1020
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aagtcagctg cagaacaatg gggctgawtc ytctgctttt tctctggaaa atctttcatt 1140
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gcctttttgg gaaaccaatt aagattaata caggataaag gaaaaaagca atctattcat 1260
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cattttggaa ttcttttcta atagga'acaa ccaaaaaagg gcttcttatg ggtgcagncg 1380
ggaaaaaagg tncattttnt tggnttgcac tcttaac 1417
```

&lt;210&gt; 708

&lt;211&gt; 948

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 708

```
ggtagacagt gtgtctcact aggggtgggtt atcagaaaaa ggctctacaa agtgacattt 60
aaagactgag aggaaaggag agagttgtat cctaccaatg attgcctccc ctctcccaca 120
tattaatgta ttacttaaag gaactgattt tttaaaattg gattgaatca tggaaacatt 180
ctttgagaat atggaaataa tttaatattt tcccgtttc cagctcttca gctgtaacag 240
tgactcaaaa tcaattacat taagattagt ttttttgtyt tggttttttt ttttaagwact 300
ttgtgcttta aatataagkg aaaatactgk atttactttt gtgtgcttcc atctgaacta 360
aagtttccca tggygcttac cgagttaggt ctggctctgg gagaggagtg gacagcagct 420
ggttgagata catccccatc tggagacagg actgccactg acagaagatg tgagctgtgt 480
ctaagtccag tcttgtgccc agccgtgtct gcgccttcac tctttggaac tctgcataca 540
acatcttagc accatcttcc tgcagctctt ccttacctaa ataaagaaac agcccaaggg 600
cagtatttct aaaagcactg taacagcttt tcatcttctc cacatatact acaaattcta 660
taaagaaaga aattaattta aaaaaactaa gatgtttttc tcttctggct tcataaatgc 720
cttgctgtat aaattgaaat attgatactg aactgtcttt ttaatgatga cctaacttta 780
ttcaacccat cggaatttac tttttccctg aaataagatc ttttccactg gtctactacc 840
tgaccataaa catgtctgca tttgaattct ctaaacccta aatctgtgtc tatgaaaaat 900
acaaatgact attaaatatt attctcttta ctgttctctt tcaccgaa 948
```

&lt;210&gt; 709

&lt;211&gt; 1329

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 709

```
ggcacgaggg gagtgctgtc gtgggggatt gtgggaaaag atggcggtg cgcacaatc 60
ccgggttggtc cgggtcctgt caatgtcacg ttctgccatt actgcaatag ccacatctgt 120
gtgtcacggc ccaccctgtc gccagcttca tcatgccctc atgcctcatg ggaaaggtgg 180
acgttcctca gtcagtggga ttgtggccac tgtgtttgga gcaacaggat tcctggggcg 240
atatgttggtc aaccaccttg gacgcatggg gtcacaggta atcataccct atcgggtgtga 300
taaatatgac atcatgcacc ttcgtcccat gggtagctg ggccagcttc tgtttctgga 360
atgggacgag agagataaag attctatccg acgagtagta caacacagca atgtggtcat 420
caatcttatt ggacgagact gggaaaccaa aaactttgat tttagaggatg tttttgtgaa 480
gattcccca gcaattgtc aactgtccaa ggaagctgga gttgaaaaat tcattcatgt 540
ttcacatctg aatgcgaata taaaagctc ttctagatat ttgagaaata aggctgttgg 600
agagaaagta gtgagagatg catttccgga agccattatc gtaaagccgt cggacatctt 660
tggaagagag gatagattcc ttaattcttt tgcaagtatg catcggtttg gtcctatacc 720
ccttggttcc ttgggctgga agacagttaa acaaccagta tatgtcgtag atgtatccaa 780
aggaattgtt aatgcagtta aggatcctga tgccaatggg aaatcctttg ctttcgttgg 840
tcccgctgg tacctccttt tccacctggg gaagtacatc tttgctgtgg ctcacagatt 900
gttccctcca ttcctcctgc cgttttttgc ctatcgatgg gtagcaagag tctttgaaat 960
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gaaattgcct cacctgcctg gcttagaaga ccttggtatt caggcaacac cactggaact 1080
caaggccatt gaggtgctgc ggcgtcatcg cacttaccgc tggctgtctg ctgaaattga 1140
ggatgtgaag ccggccaaga ccgtcaacat ttagtgccctc ctgagcagct cttgggtttg 1200
gcgtcttttg ggtcggtcca tgtggtttga gcaccagcc aggcggtctc ttttagaggat 1260
cctgtacaca gttccactat taaaacattt caggttgaaa aaaaaaaaaa aaaraaaaaa 1320
raaaaaaaaaa 1329
```

&lt;210&gt; 710

&lt;211&gt; 534

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (529)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 710

```
attctgactt tggttttgat tctggtttgg tataaactgt aaaagtgtgt gtgtgccctt 60
tttacctggt ctttgttttg tgggtgtgtg atggtgtgag tgtggtgttt tgtcttgagg 120
aagcatgggt caggcacaac gtaagccac ccaccagga actatgttga aaaatttcaa 180
gaaaggattt ragggagatt acggtgttac tatgacacca ggaaaactta ggactttgtg 240
tgaaatagac tggccagcat tagaggtggg ttggccatca gaaggaagcm trgacaggtc 300
ccttgtttca aaggtatggc acaaggtaac ctgtaagcca gggtagccag accagttccy 360
gtacatagac acttggttac agctggtttt agrcccttcc taccctcacg gtggttgaga 420
gaacagcagc ataagcagct ggcagaggca aggaaagacc agcaaagaga cagagaagaa 480
agagacagga aaagaggcaa agagagagaa gaagagagag aggaagagnc agag 534
```

&lt;210&gt; 711

&lt;211&gt; 1143

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (41)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (77)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1110)

<223> n equals a,t,g, or c

<400> 711

```
aaatgctcca gggnatcgct ccaacaactt aaaggagggt naacacctgt tgcacgcctg 60
ctcatggcag cgcttgnaga aatgactggg ggagtccagc gaggtcgggg acgcagcggg 120
ctccaggctc cagaaacctc cttagccttt tgtggtaact ttggtccggc ggcggggggc 180
cggtgagcag gaactggagg gaggcgggtg ggaaaccgtg gatccgtccg gctgaggggtg 240
cgtggatcag actgggctga gcaggcaagt catcgtcggg tcacagcgag gcgaccagg 300
agcgaacttc cagggcagcc tcccttttgt tggcgctggg agagaatgtg ggcattggggg 360
tggggaggcg cgaagctccg aggccggggc gcggatactt taaagctcag agctgggagg 420
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<400> 712

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<211> 1036

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<211> 4443

<212> DNA

<213> Homo sapiens

<400> 714

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<212> DNA

<213> Homo sapiens

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<222> (547)

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<212> DNA

<213> Homo sapiens

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<210> 718

<211> 2086

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1863)

<223> n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1913)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 718

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&lt;210&gt; 719

&lt;211&gt; 2418

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1)

<223> n equals a,t,g, or c .

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2200)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (2211)

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<222> (2347)

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<221> misc feature

<222> (2384)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2393)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2401)

<223> n equals a,t,g, or c

<400> 719

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<210> 720

<211> 2541

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1149)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1209)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2527)

<223> n equals a,t,g, or c

<220>

<221> misc feature



&lt;222&gt; (2538)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2540)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 720

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2541

&lt;210&gt; 721

&lt;211&gt; 2171

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (5)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1996)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 721

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<210> 722

<211> 1888

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (787)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1875)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1878)

<223> n equals a,t,g, or c

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aaaaaaaaaa aaccncgngg ggggcccc 1888

<210> 723

<211> 980

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (968)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (972)

<223> n equals a,t,g, or c

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&lt;210&gt; 725

&lt;211&gt; 974

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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&lt;210&gt; 726

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&lt;213&gt; Homo sapiens

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&lt;222&gt; (9)

&lt;223&gt; n equals a,t,g, or c

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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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<212> DNA

<213> Homo sapiens

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<400> 731

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<211> 2017

<212> DNA

<213> Homo sapiens

<400> 732

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<210> 733

&lt;211&gt; 2004

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2001)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 733

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&lt;210&gt; 734

&lt;211&gt; 1128

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

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<223> n equals a,t,g, or c

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<210> 735  
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<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (693)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (741)

<223> n equals a,t,g, or c

<400> 735

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<211> 1099

<212> DNA

<213> Homo sapiens

<400> 736

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<210> 737

<211> 3219

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<400> 737

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&lt;210&gt; 738

&lt;211&gt; 849

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 738

```

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cgggcccgcg cggggctgcc tggccggtgc tgttggggct gctgctggcg ctgttagtgc 120
cgggcggtgg tgccgccaag accggtgctg agctcgtgac ctgcgggtcg gtgctgaagc 180
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aaggcatctt catcaagcct agtgtggagc cctctgcagg tcacgatgaa ctctgagtgt 720
gtggatggat ggggtggatgg aggggtggcag gtggggcgtc tgcagggcca ctcttgagc 780
agactttggg tttgtagggg tcctcaagtg cctttgtgat taaagaatgt tggctctatga 840
aaaaaagtc 849

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&lt;210&gt; 739

&lt;211&gt; 2069

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (2046)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 739

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gcgccgactg agcctctaaa gcgacttcag ctctgcccc ccaacaccac cgctccgggg 60
gaggggctta atgctgggga agggatgtct taaaagagga gaagctttaa attagacgat 120
cggagaaggc tgagggaatt gctatgaarg ggcgggagct gaagtgtaga ggactccttt 180
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<210> 740

<211> 1567

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1532)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1548)

<223> n equals a,t,g, or c

<400> 740

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atggagggcg aggacgtgga agacgaccag ctgctgcaga agctcagggc cagtcgccgc 180
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ggaagactaa taaaggaaaag aaacaaagga gagatccagg actcctccat gaagcccgcg 360  
gacaggacag atggctccgt gcaagctgca gcctggggtc ctgagcttcc ctcgcaccgc 420  
acagtcctgg gagccgattc aaaaagcggg gaggtcgtatg ccacgtcaga ccaggaagag 480  
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<210> 741

<211> 2829

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (74)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1523)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1728)

<223> n equals a,t,g, or c

<400> 741

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ttaataagaa aaaaccataa aatttactgt ttttaaaaag ctgctctaag taatcagaca 180  
gtcaaaaagag caggaatcag ctctccagga ggctcttttg tctggggccg aggggatgag 240  
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tcggggagag gatgtggatc agctcgtagc ctgcatagaa agcaaaactgc cagtgtctgtg 480  
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&lt;210&gt; 742

&lt;211&gt; 926

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

<222> (30)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (460)

<223> n equals a,t,g, or c

<400> 742

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ctaggggaga agcccgggtt ggggctggtt tccggcctat gctgccctcc caggggggctc 180
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ctcccatggc tccccctgca gttgggggcg gggagccctg tgcagctcct tgttgctgcc 600
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gaccctggtg gccaagacag aagaga 926
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<210> 743

<211> 1017

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (599)

<223> n equals a,t,g, or c

<400> 743

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caagcagtgc cagaggccct cagaaagga ttagggtaga tgattgcaac tgaaacacaa 840
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tcttctttct ttgccagggt attttggggg ttttgcccca aaatataccc tgggcatagc 900  
attactgcag tcttgatgt ctaccccaaa cttccacacc atccttcgac ccacagctgc 960  
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<210> 744

<211> 361

<212> DNA

<213> Homo sapiens

<400> 744

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ccggcatgga ggatccacag agtaaagagc ctgccggcga ggccgtgggt ctcgcgctgc 180  
tggagtcgcc gcggccggag ggcggggagg agccgccgcg tcccagtcgc gaggaactc 240  
aacagtgtaa atttgatggc caggagacaa aaggatccaa gtccattacc tccagtgcga 300  
gtgacttcag tgaccgggtt tacaaagaga ttgccattac gaatggctgt attaatagaa 360  
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<210> 745

<211> 1936

<212> DNA

<213> Homo sapiens

<400> 745

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caataaatac cactttttaa aatgacacat atttaaacac ttagaaaata aagttaacac 180  
ttactgaagt gctagtacta aactgtgcta gtactaaaag aaaacagggtt ggaacataca 240  
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caactatatg aaaccttggt cattcctccg agtactgtaa tgttcacact tgtacaatct 1800
tccctgtcat gactttaagt tctacttttc attaacatg gcctgatatt agttcttaga 1860
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ctcgagacta gttctc 1936

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<210> 746
<211> 1619
<212> DNA
<213> Homo sapiens

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<220>
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<222> (1565)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (1567)
<223> n equals a,t,g, or c

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<220>
<221> misc feature
<222> (1568)
<223> n equals a,t,g, or c

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tccgagtcctc cgccgctgcg ggcccgcctc gacgcggaag atctgactgc agccatgagc 180
agcaatgagt gcttcaagtg tggacgatct ggccactggg cccgggaatg tcctactggg 240
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tgaagtccta gaaaatagaa atgtaatttt aaactattcc aataaagctg gaggaggaag 1560  
ggganannaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagg 1619

<210> 747

<211> 492

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (54)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (491)

<223> n equals a,t,g, or c

<400> 747

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gaaaataaaa cactctggtc ttgccgccaa cgatgcaagt gtgactgctg gcgtcttcat 240  
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ggcctccaat cggcacctyc tccaggctcg tgggcatcac ctgcattgtt aatgstacca 420  
ttgagatccc taatttcaac tggccccaat ttgagtatgt taaagtgcct tgggtgnacat 480  
gccccattgg nt 492

<210> 748

<211> 603

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (598)

<223> n equals a,t,g, or c

<400> 748

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gcgggaagaa gaaggaggag ctgctgaaac agctggacga cctgaagggt gagctgtccc 180  
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tccggaaatc cattgcccgt gttctcacag ttattaacca gactcagaaa gaaaacctca 300  
ggaaattcta caagggaag aagtacaag ccctggacct gcggcctaag aagacacgtg 360  
ccatgcgccg ccggtcaac aagcacgagg agaacctgaa gaccaagaag cagcagcgga 420  
aggagcggct gtaccgctg cggaagtacg cggtaaggc ctgaggggag cattgtcaat 480  
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tag 603

&lt;210&gt; 749

&lt;211&gt; 2045

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 749

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actctctttg tgggcaacct tgaaacgaaa gtgaccgagg agctcctttt cgagcttttc 180  
caccaggctg ggccagtaat aaagggtgaaa attccaaaag ataaggatgg taaaccaaag 240  
cagtttgcgt ttgtgaattt caaacatgaa gtgtctgttc cttatgcaat gaatctactt 300  
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gccaaaggta accatcatca cagcgtaaa tcaaatgaa ttcttatccc tacctagcag 720  
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ttgttgaaaa ataaggatcc tttttaatac cacagcattt gtactgttcc tttttaatat 1980  
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aaaaa 2045

&lt;210&gt; 750



<211> 1144  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (1117)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1121)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1127)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1130)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1137)  
<223> n equals a,t,g, or c

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tcgttggaa gttgttttac agtaatcctt accaagataa catactgtcc tccagaatac 180  
caagtattag gtgacactag ctcaagctgt tgtcttcaga gcagttacca agaagctcgg 240  
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cccaaattag tgtcagccga aagkagggtt caagatagtc ctgtcagtat ttgtggtgac 480  
cttcagatta gacagtcttc atttccagcc agtggagtcc tggctccaga gccatctctg 540  
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gaac 1144

<210> 751  
<211> 1598  
<212> DNA  
<213> Homo sapiens

<400> 751  
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cacggtctgc ccacccaacg cgaagacggt aaccctgtgt actttgactg gagagaagtg 240  
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accattgatg aggaactaga acgggacaag agggtcactt ggattgtgga gttctttgcc 420  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaag 1598

<210> 752  
<211> 1485  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (243)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (1382)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (1429)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1436)

<223> n equals a,t,g, or c

<400> 752

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anaggcttar gcaggaaaat gacgtgaacc cgggaagcgg agcttgcant gagccnaaat 1440
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<210> 753

<211> 1756

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1740)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1756)

<223> n equals a,t,g, or c

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tgtgggggct caaggttctg ctgctacctg tgggtgagctt tgctctgtac cctgaggaga 180  
tactggacac ccactgggag ctatggaaga agaccacag gaagcaatat aacaacaagg 240  
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tgaccagtga agaggtggtt cagaagatga ctggactcaa agtacccttg tctcattccc 420  
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aaaaaaaaaa aaaaan 1756

&lt;210&gt; 754

&lt;211&gt; 1795

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 754

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&lt;210&gt; 755

&lt;211&gt; 1280

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 755

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&lt;210&gt; 756

&lt;211&gt; 3665

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3654)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 756

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<210> 757

<211> 1221

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1071)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1081)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1201)

<223> n equals a,t,g, or c

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<210> 758
<211> 631
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (630)
<223> n equals a,t,g, or c

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<211> 2496
<212> DNA
<213> Homo sapiens

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<210> 760

<211> 2048

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1957)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1963)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2006)

<223> n equals a,t,g, or c

&lt;400&gt; 760

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&lt;210&gt; 761

&lt;211&gt; 1757

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1728)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 761

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<211> 4448

<212> DNA

<213> Homo sapiens

<220>

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<220>

<221> misc feature

<222> (920)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4433)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (4446)

<223> n equals a,t,g, or c.

<400> 762

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<210> 763

<211> 2890

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<400> 763

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<210> 764

<211> 1703

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (368)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (860)

<223> n equals a,t,g, or c

<400> 764

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<210> 765

<211> 262

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (156)

<223> n equals a,t,g, or c

<400> 765

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caaaaccttt ctccaggacc tt 262
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<210> 766

&lt;211&gt; 3072

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (3072)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 766

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<220>

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<223> n equals a,t,g, or c

<400> 767

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<210> 768

<211> 1532

<212> DNA

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1523)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 768

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&lt;210&gt; 769

&lt;211&gt; 2569

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 769

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&lt;210&gt; 770

&lt;211&gt; 1637

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 770

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<210> 771

<211> 2485

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2479)

<223> n equals a,t,g, or c

<400> 771

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<210> 772

<211> 432

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (378)

<223> n equals a,t,g, or c

<400> 772

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<211> 1048

<212> DNA

<213> Homo sapiens

<400> 773

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<210> 774

<211> 1019

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (971)

<223> n equals a,t,g, or c

<400> 774

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gaaggaacgc ttgactattt atgaagaagg aacatgtttg attcacacat gcaacctgaa 360  
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atggttcctg ccttcattcc atcttttaaa aatttgtatg ctgtactaca tttgtataga 540  
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aaagcacact tgaggagcta gggaaactatt ttgaaaaata tatacaatat ttaaagatac 720  
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cawtttttaa atgrgtaaaa ccycgtgatt tcygctggca ttaagggtkg atggtgttac 840  
catgtatcat catggcggtg ctatttttta aaagaaatta aacactggat ctctccttaa 900  
gccaacattg aaaagacttg ccgcacttct gagtccaaac actggaaagc tctcctttgc 960  
caccgttagg nggggctcat tctccatgtg ccttagcctt aaacatgccc ccactccgc 1019

<210> 775

<211> 2248

<212> DNA

<213> Homo sapiens

<400> 775

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ccgaakccca kgakcccggg gcgcccgcgg cgggcatgag gcggcgccgg cggctgcagc 180  
aagaggacgg catctccttc gagtaccacc gctaccccga gctgcgcgag gcgctcgtgt 240  
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acactactta aaagtttagg gttttctctt ggttgtagag tggcccagaa ttgcattctg 2160  
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<210> 776

<211> 1605

<212> DNA

<213> Homo sapiens

<400> 776

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gggatccttg tggcccttcc ggtcgrtgga accaatccgt gcacagagaa gcggggcgaa 180  
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tgaggggcag agggccgcgg agggccgagt tgcaaacatg gctcagagca gagacggcg 300  
aaaccgcttc gccgagccca gcgagcttga caacccttt caggaccag ctgtgatcca 360  
gcaccgaccc agccggcagt atgccacgct tgacgtctac aaccctttt agaccggga 420  
gccaccacca gcctatgagc ctccagcccc tgccccattg cctccacct cagctccctc 480

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cttgcagccc tcgagaaagc tcagccccac agaacctaa aactatggct catacagcac 540
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gaaggcagag gagttggacc gaaggagcga gagctgcagc atgctgccct gggaggcaca 660
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&lt;210&gt; 777

&lt;211&gt; 1808

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1457)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1806)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 777

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ccaccctctt ggaggccatg aaaggaccca gggaagagat cgtctacctg ccctgcattt 180
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ctccccagta ttgccaggtc atccaccggc tgcccatgcc caacctgaag gacgagctgc 300
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<210> 778

<211> 1484

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1405)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1479)

<223> n equals a,t,g, or c

<400> 778

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gcttgagttt tgattcatca tggataatct gtcacagaa gaaattcaac agagagctca 180  
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agaactcaac aaatgctgtg gcctttgtgt ctgccatgt aatagaacaa agaactttga 420  
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agttttcttt cttttttttt ttttngggag tcagagtctc gctcycytgk ccmrggctgg 1440  
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<210> 779

<211> 1343

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1313)

<223> n equals a,t,g, or c

<400> 779

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gaatgcgtgt gcctccacac gggctctgggc atccggactg ataaccagcc ggccagactg 180  
agggatggaa ggcactgaga tgggggccccg tccaggcgga caccgcgaga aatggagctt 240  
tctgtggtct cttgcaactc ggctgcctct tgcctctctc gtgtctctct ttcttgggtc 300  
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aagtcattgt actgaactgt ttttatattt ttaaaagtta ctatttaaag gtnaaaaaaa 1320  
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<210> 780

<211> 453

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (170)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (225)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (258)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (282)

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<220>

<221> misc feature

<222> (287)

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<221> misc feature

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<220>

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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (432)  
<223> n equals a,t,g, or c

<220>  
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<222> (433)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (443)  
<223> n equals a,t,g, or c

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agacactgtc tctacaaaa aaaggaagga agggacacat atcaaactgn aacaaaatta 180  
gaaatgtaat tatgttctaa gtgcctccaa gttcaaaact tattngaagtg ttgagagttt 240  
ggttacggaa ttcggttngg ggggccaaag ggttggttta gntttttaat nccggtntnt 300  
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<210> 781  
<211> 498

<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (19)  
<223> n equals a,t,g, or c

<220>  
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<222> (120)  
<223> n equals a,t,g, or c

<220>  
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<222> (421)  
<223> n equals a,t,g, or c

<220>  
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<222> (428)  
<223> n equals a,t,g, or c

<220>  
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<222> (430)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (459)  
<223> n equals a,t,g, or c

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aagagagcga gacctgtct caataaataa ataaataaat aaataaataa ataaataaaa 180  
acaaagtga ttaagaaagg aagtataggc caggcacagt ggctcacacc tgtaatcctt 240  
gcattttgga aggctgaggc aggaggatca ctttaggcct ggtgtgttca agaccagcct 300  
ggtcaacata gtgaggacac tgtctcttac caaaaaaagg aggggaaggga cacatttcaa 360  
atgaaacaaa ttagaatgtt atttatgttc taagtgcctc cagttcaaaa ttttttggat 420  
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tttttgtatt tttagtagag acagagtttc accatggttg ccaggctggt cttggaactc 240
ctggaccttg tggatccacc cacctcggcc tccagagtg ctggggatta cagggcatga 300
gccaccacgg cttgggctna aggaacacct aanttttatg tttcttgggn tcaaaaacca 360
gtttccattc nnangttgtc ctcacaagan ggttantggt ggtggagaca gcaggggagg 420
gaggggaagag ngtggtttgt aantggttca antcaggcan taagcgattt tagctttaat 480
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agcgggctga cgggcgcac gtcaagatgn aggtggacta cagcgccacg gtggatcagc 180

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gcctacccga gtgtgcgant agccaaggaa ggaagacttc aagaagtcac tgaaaccctt 240
ctctctctgg aaaagcagac tcgtactgct tccgatatgg tatcgacatc ccgtatctta 300
gttgccagta gtggaagatg tgctaatan ggctaaaaga atgggattta anttaatgna 360
aaatgattat gcntttgtcc caaaaggcgg attcagttta aaacaagctg ttgccccaaa 420
tggttncaac atggncgtac nttatgtttg aaggaaantc acagaacntt cccatccaaa 480
cnttngattn aattgataat cccacgaatg ggtttaccga ggccaagatt ttatgttgga 540
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<400> 784

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aagcgtgaca ttcaggaaaa cgatgaagag gcagtgaag tcaaagagca gagcatcctg 180
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gagcagggtt tccccttgga cctcggagca agtttcaccg aagatgctcc cccgancccn 180  
agtgcctggt gaggagggag aactggtgtc cacagacccg aggcccgcca gctacagttt 240  
ctgctccggg naangtggtg gcattaaagg tgagacttcg acggccactc cgaagcgctc 300  
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ccctctgcag caatggccac cggcgggctg ccacacggac ttccccctgg ggacggcant 180  
tccccagcag gacttacccc ggaccctggg tcttgaggga agtgctgagc agcagggggac 240  
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acccatnnct ttcctngncc ccattcagat gcagccgnaa gttnccgnc gttncattaa 360  
ccaaggggtt tatgccaacc ggttnctgga tgccaaagga ggcccaagtc aaaggggggn 420  
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gctaaaatcc ttatttgtcc ggaaagtga tccaagaaaa gatgccact ccaatctcct 180  
atccaaaaag gaaacaagca atctatacaa attacagttt cacaatgtta aaccggaatg 240  
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agttttctat gccagtggt cctgacttcg aaacgctatt ctcacagggt cagctcttca 180  
tcagcacttg taatggggag cacattcgat atgcaacaga cacttttgct gggctttgcc 240  
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tccacctctg gggcgcatc caaccttcca gcctgcgacc tgcggagaaa aaaaattact 180  
tattttcttg ccccatatc accttgaggc gagcaaaaaa attaaatttt aaccatgagg 240  
gaaatcgtgc acatccaggc tggtcagtgt ggcaaccaga tcggtgccaa gttctgggag 300  
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tgcgttttgg gccgggggtc gcttttcgcg cgcccagcat tcacgggggc tccggcggcc 180  
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caggctatat ttgaaatact ggagaaatcc tggttgcccc agaattgtac actggttgat 180  
atgaagattg aattttggtgt tgatgtaacc accaaagaaa ttgttcttgc tgatgttatt 240  
gacaatgatt cctggagact ctggccatca ggagatcgaa gccaacagaa agacaaacag 300  
tcttatcggg acctcaaaga agtnactcct gaagggtcc aaatggtaaa gagaaacttt 360  
gagtggtttg cagagagagt agagttgctt ttgaaatcag anagtcagtg cagggttgta 420  
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atcaagatca tcgcaccccc agagcgcaag tactcggtgt ggatcggtgg ctccatcctg 180  
gcctcactgt ccaccttcca gcanatntgg attacaagca ggagtacnac aantcgggnc 240  
cctccatcgt ccaccgcaaa tgcttctaac ngactcnan atgcttacca ttgctgcatg 300  
ggttaattaa naataaaaaan tttgccctg gcaaatgcac acacctcatg cttacctccc 360  
caaaattgga ataanccttc caaaaaaaaa ntgttcctta aaacttgttt tcttaatttc 420  
nnccttgg 428

&lt;210&gt; 793

&lt;211&gt; 526

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

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&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (170)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (303)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (327)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (329)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (334)

&lt;223&gt; n equals a,t,g, or c

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aggacttcct ggcaggtgga gtggccgcag ccatctcaag acggcggtan gcccatcgag 180  
cggttcaagc tgctgctgca gttgcaatgc cagcaagcag atcactgcag ataagcaatg 240  
caaaggcatt atagactgcg tgggtccgtat tcccaaggag caggattctg tccttctggc 300  
gcnctaactg gccatgtcat cagatantnc ccancagggt tcttaatttc gnccttcaag 360  
nttaatacaa gcanatnttc nggggtggtg tggnacanga gaaccattt tggggctaana 420  
ttgcagggaa tttgggcata ggggtggttc ncgggggcca aattccnggg ttttgngtaa 480  
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gaaggaggaa aggggtgctgc tggtcctcct gggccacctg gtgctgctgg tactcctggt 180  
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ggtgaaccag gcggtccagg tgctgatggt gtcccaggga aagatggccc aaggggtcct 300  
antgggtccta ttggtcctcc tggcccagtt ggccagcctg gagataaagg gtgaagggtg 360  
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ccgccgccgc catgggctgc acgttgagcg ccgaagacaa ggccggcagtg gagcgatgaa 180
gnatgatcga ccgcaactta cgggaggacg gggaaaaagc ggccaaagaa gtgnaagntg 240
ctgctacttc ggtgctggag aatctgggta aaagcaccat ttgtgagaca gatgaaaatc 300
atttcatgag gntgggtatt cagaggtnga atgttaaaca atattaaagt tagttntttt 360
ncagcatnnt tgttncagtg centcattgc aatnttnagt ggccttggga ngggtnaaaa 420
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tagataaggc tggcacctgg gccccccggg agctgggtgct ggtggtccag gtgcataacc 180  
ggcccgaata cctcagactg ctgctggact cacttcgaaa agcccaggga attgacaacg 240  
tcctcgtcat ctttagccat gattctgggtc gaccgagatc aatcagttga tcgccgggggt 300  
tgantttctgt tccggttttg caggtgtttt tttncntttc aagcattcaa ttgttancct 360  
aacgagtttt ccagtaagtg gaccncagag gatttntccc agagaacntn ccgaagaatg 420  
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gtcgtgactg ggaaaaccct ggcgttacct aacttaatcg ccttgacgca catccccctt 180  
tcgccagctg gcgtaatagc gaagaggccc gcaccgatcg cccttcccaa cagttgcgca 240  
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ccttcctttc tcgccacgtt cgccggcttt ccccgtaag ctctaaatcg ggggctcctt 420  
tanggttccg atttagtgct ttacgggcac ctcgacccca aaaaaacttg attangggta 480  
atggntcacg tantngggcc atcgccctga tagacggttt ttcgcctttg acgttngngt 540

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589

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caccttctgt atctacaaac gatgcagaca cccaggagag ttacgtaatg ggcaagtaga 180  
gattaagaca gatttatctt ttggatcaca aatagaattc agctgttcag aaggattttt 240  
cttaattggc tcaaccacta gtcgttgatga agtccaagat agaggagttg gctggagtca 300  
tcctctccca caatgtgaaa ttgtccaagt gtaagcctcc tccagacatc aggaatggga 360  
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antgcagaag gccatcgggg ccgtgccgnt gattcanggc gagtacatga nccccgtgna 180  
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cncagagga 249

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 ctccgagtga ggaccatcta cgagagnana aatgattgaa tacgatcctg aaagaagatt 180  
 aggaatcttt tgggtgagtt gtgaggctgg cacctacatt cggacattat gtgtgcacct 240  
 tggtttggtta ttgggagttg gtggtcagat gcaggagctt cggagggttc gttctggagt 300  
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gntnccgtgc cgttcagttg cccgccatgg ctgagctgga tccgttcggc gcccttgccg 180  
gcgccccctg ggtncgcgcg ctggggaacg gatgnccggc gccggcgaag aagaccggc 240  
tgcggccttc ttggcgcaaa gnagaagcga gattgcgggc atcgagaacg acgaggcctt 300  
cgccatcctg gaacggcggc gcccccgggc cccaaccgca aggaaagtcc ggcgnggggt 360  
tccgatgctg ttgnatggan taatgnaatg gtggattatn acnagnaaat taatggttcc 420  
aacanaaatt atgcagtatt tcaaaatgga tcgattgcat caaacctga aatatcctaa 480  
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542

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aactgacgca gagtaagatc tgggacgtgg tggagaaggc agacatcggc tgcaccccg 180  
gcagtgggaa ggattacgcc ggtgtcttct ccgacgcagg gctgaccnnc acgagcagca 240  
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gcngttccgt gcagctcacg gagaagcgaa tggacaaagt cggcaagtac cccaaggagc 360  
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gg 422

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<220>  
<221> misc feature  
<222> (359)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (519)  
<223> n equals a,t,g, or c

<400> 805  
cgagctgacc ctgatcaggg ccgagttgtc tcggcggcgc tgccgaggcc tccacccggg 60  
gaggggtggtt accgctgagg agctgcagtc tctgtcaaga tgatagaggt actgacaaca 120  
actgactctc agaaactgct acaccagctg aatgccctgt tggaacagga gtctagatgt 180  
cagccaaagg tctgtggttt gagactaatt gagtctgcac acgataatgg cctcagaatg 240

actgcaagac taagggactt tgaagtaaaa gatcttctta gtctaactca gttcttggct 300  
tgacacagag acatttctct agctgtgaat tactggacag antcctgtct aaaatgaang 360  
tacagcccaa gcacctgggt gtgttggaact gagctgcttt tatttggctg taaaatcaat 420  
agaagaggaa aaggatgtcc cattggcaac tgacttgatc cgaataagtc aatataaggt 480  
tacgggttca gactgatgag aatgggaaaa attgtattng agaaggtgtg tttggaagtc 540  
aagctactaa tgcctttcaa ttctgc 566

<210> 806

<211> 438

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (383)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (428)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (437)

<223> n equals a,t,g, or c

<400> 806

cccagtccta gctgctggca tcactataact actaacagac cgcaacctca acaccacctt 60  
cttcgacccc gccggaggag gagaccccat tctataccaa cacctattct gatttttcgg 120  
tcacctgaa gtttatattc ttatcctacc aggcttcgga ataattctccc atattgtaac 180  
ttactactcc ggaaaaaaag aaccatttgg atacataggt atggctctgag ctatgatato 240  
aattggcttc ctagggttta tcgtgtgagc acaccatata tttacagtag gaatagacgt 300  
agacacacga gcatatttca cctccgctac cataatcatc gcttatcccc accggcgcta 360  
aagtatttagc tgactcgcca canttcacg ggagcaatat gaaatgatct ggctgcagtg 420  
ctctgagncc taaggant 438

<210> 807

<211> 236

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (122)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (140)

<223> n equals a,t,g, or c

<220>  
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<222> (215)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (219)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (228)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (231)  
<223> n equals a,t,g, or c

<400> 807  
ctcgtgccga attcggcacg agaaactttc ctcactatct gettcatccg ccaactaata 60  
tttcaacttta catccaaaca tcactttggc ttcgaagccg ccgcctgata ctggcatttt 120  
gnacatgtgg tttgactatn tccgtatgtc tccatctatt gatgagggtc ttataaaaaa 180  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaancccnng ggggggggncc nggacc 236

<210> 808  
<211> 552  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (375)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (399)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (405)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (447)  
<223> n equals a,t,g, or c



<220>  
<221> misc feature  
<222> (473)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (503)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (512)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (516)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (543)  
<223> n equals a,t,g, or c

<400> 808  
ggcacgagtg gagaaccggg cccagcagca ctggggcagt ggagtgaggag tgaagaagct 60  
gtgtgaactg cagcctgagg agaagtgctg tgtggtgggc actctgttca aggccatgcc 120  
gctgcagccc tccatcctgc gggagggtcag cgaggagcac aacctgctcc cccagcctcc 180  
tcggagtaaa tacatacacc cagatgacga gctggtcttg gaagatgaac tgcagcgtat 240  
caaaactaaaa ggcaccattg acgtgtcaaa gctggttacg gggactgtcc tggctgtgtt 300  
tggtctcgtg agagacgacg ggaagtttct ggtggaggat tattgctttg ttgaccttgc 360  
tccccagaag cccgnacccc cattgacaca gttaggttnt gttantggtg tccggcctgg 420  
gcctgggttg cgttggaggc gagagcntgt tgggcaccca ttgttggtg atntggtgac 480  
ggggcagttt ggggacgaag ggnagcatgc ancgngcca agtttcccg ttatcctggt 540  
tgnaacttct aa 552

<210> 809  
<211> 380  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (349)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (359)

<223> n equals a,t,g, or c.

<220>

<221> misc feature

<222> (362)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (365)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (380)

<223> n equals a,t,g, or c

<400> 809

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ggcacgaggc tgaggcggcg ccagttggcc gggcacgggg ctgctgtaag gccgaggttg 60
cggcggaagc ggagaccatg ttccgagcgg cggctccggg gcagctccgg cgggcggcct 120
cattgctacg atttcagagt accctggtaa tagctgagca tgcaaatgat tccctagcac 180
ccattacttt aaataaccatt actgcagcca caccgcttgg aggtgaagtg tcctgcttag 240
tagctggaac caaatgtgac aaggtggcac aagatctctg taaagtagca ggcatagcaa 300
aaagttcttg tggtcagca tgaatgtgta caagggctta cttccagang gaactgaana 360
cnatnatttt tggaaactcn                                     380
```

<210> 810

<211> 416

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (352)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (384)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (401)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (406)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (407)

<223> n equals a,t,g, or c

<400> 810

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aagaaagtag aggacatgat gaagaagctg tggggtgacg gcccagaagt accgctgcga 60
gctcctgtac gaggggcccc cggacgacga ggctgccatg ggcattaaaa gctgtgaccc 120
caaaggccct cttatgatgt atatttccaa aatgggtgcca acctccgaca aaggtcgggt 180
ctacgccttt ggacgagtct tctcggggct ggtctccact ggcctgaagg tcaggatcat 240
ggggcccaac tatacccctg ggaagaagga ggacctctac ctgaagccaa tccagagAAC 300
aatcttgatg atgggccgct aagtgggaagc ccacgaaagg atgtgccttg tngggacatt 360
ttgggcctcg tggcggttga ccantccttg tgaaaacggg naccannaac aacttc 416
```

<210> 811

<211> 748

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (543)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (619)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (668)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (671)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (714)

<223> n equals a,t,g, or c

<400> 811

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gccgcccagc cagcctcat ggagcccatc taccttgtgg agatccagt tccagagcag 60
gtgggtcgggtg gcatctacgg ggttttgaac aggaagcggg gccacgtgtt cgaggagtcc 120
cagggtggccg gcacccccat gtttgtggtc aaggcctatc tgcccgtaa cgagtccttt 180
ggcttcaccg ctgacctgag gtccaacacg ggcgggccagg cgttccccca gtgtgtgttt 240
gaccttggc agatcctgcc cggagacccc ttcgacaaca gcagccgcc cagccagggtg 300
gtggcgggaga cccgcaagcg caagggcctg aaagaaggca tccctgccct ggacaacttc 360
```

```

ctggacaaat tgtaggcggc ccttcctgca gcgcctgccg ccccggggac tcgcagcacc 420
cacagcacca cgtcctcgaa ttctcagacg acacctggag actgtcccga cacagcgacg 480
ctccccctgag aggttttctgg ggcccgtgc gtgccatcac tcaaccataa cacttgatgc 540
cgnttcctttc aatattttatt tccagagtcc ggaggcagca gacacgccct cttagtaggg 600
acttaatggg ccggtcggng agggggaggc gggatgggac acccaacact tttttcattt 660
cttcagangg naaacttcag atgtccaaac taattttaac aaacgcatta aganggttaa 720
tttgggtaca atgggcccga atggcttt 748

```

<210> 812

<211> 562

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<400> 812

```

aagnnganac aaccctcact aaaggggaaca aaagctggag ctccaccgcg gtgcggccgc 60
tctagaacta gtggatcccc cgggctgcag gaattcggca cgagcacaat ttgcgcgctc 120
tctttctgct gctccccagc tctcggatac agccgacacc atgggtttcg gagacctgaa 180
aagccctgcc ggcctccagg tgctcaacga ttacctggcg gacaagagct acatcgaggg 240
gtatgtgcc a tcacaagcag atgtggcagt atttgaagcc gtgtccagcc caccgcctgc 300
cgacttgtgt catgccctac gttggtataa tcacatcaag tcttacgaaa aggaaaaggc 360
cagcctgcc a ggagtgaaga aagctttggg caaatatggt cctgccgatg tggaagacac 420
tacaggaagt ggagctacag atagtaaaga tgatgatgac attgacctct ttggatctga 480
tgatgaggag gaaagtgaag aagcaaagag gctaagggaa gaacgtcttg cacaatatga 540
atcaaagaaa gccaaaaaac ct 562

```

<210> 813

<211> 415

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (15)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (20)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (27)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (42)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (48)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (50)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (53)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (69)  
<223> n equals a,t,g, or c

<400> 813  
gaaaataagn gatgntcgan gtgaaanacc atactaaagg gncaaaantn gantcaccgc 60  
ggtgcggcng tctagactag tggatccccc gggctgcagg aattggcacg aggttagttt 120  
ctgcgacttg tgttgggact ggaagatgtc ttcaggaaat gctaaaattg ggcaccctgc 180  
ccccaaacttc aaagccacag ctgttatgcc agatgggtcag tttaaagata tcagcctgtc 240  
tgactacaaa ggaaaatatg ttgtgttctt cttttaccct cttgacttca cctttgtgtg 300  
ccccacggag atcattgctt tcagtgatag ggcagaagaa ttttaagaaac tcaactgcc 360  
agtgattggt gcttctgtgg attctcactt ctgtcatcta gcatgggtca ataca 415

<210> 814  
<211> 316  
<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (21)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (85)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (93)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (110)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (111)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (118)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (121)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (154)

<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (177)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (186)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (195)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (210)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (245)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (247)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (280)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (304)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (314)  
<223> n equals a,t,g, or c

<400> 814  
aaaggagacaa aagcnggagc nccaccgcgg ggcgnccgct ctagaactag tggatcccc 60  
gggctgcagg aattcggcac agctntgggg gantcctggt gcacccccan ngggtctnct 120  
ntgctgcccc ttgcctaaag aagaatagcc aggnctggct gggtcggcac aacctgnttg 180  
agcctnaaga cacangccag agggtcctn tcagccacag cttcccacac ccgctctgac 240

aatantnagc ctttctgaag catcaaagcc ttagaccagn tgaagactcc agccatgacc 300  
tcangctgct ccgnct 316

<210> 815  
<211> 507  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (9)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (265)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (279)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (309)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (336)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (349)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (358)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (385)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (399)



<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (437)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (466)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (486)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (506)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (507)

<223> n equals a,t,g, or c

<400> 815

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ggcacagcnc gcatgggctg cggggccgcg cgagctcgcc tccgtcctct gcctccgcag 60
aacgccgcga tggctgcgca gggagagccc cagggtccagt tcaaagtagg taaccctgcg 120
ggcgggaggg ggccgagccc gaccgcgtgc gactcgcggg tccctcctcc tggggccacg 180
atggctgtaa tggggccccg catccacatt ctttgtttta agtgagcctg tgggtggttaa 240
agttccgtga ctctgggatc ttganagggt aatgtttang gtttacttcc aaaatgtgtt 300
tttcaacanc ttgtaatggt tggatgatgg ggtaanggga aaaacgacnt cgtggaantg 360
catttgactg gtggaatttg agaanaatgt gttagccanc ttgggtgttg gaggttcaac 420
ccccaatgtt tccacancaa cagaggaccc attaatgtca atgtantggg acacagccgg 480
ccaggngaatt tccgtggact ggaaann 507
```

<210> 816

<211> 551

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<400> 816

```
cnagtgtaga cagcnaaccc tcactaaagg gaacaaaagc tggagctcca ccgcggtgcg 60
gccgctctag aactagtggg tcccccgggc tgcaggaatt cggcacgagc aggcattgcag 120
aaggctgacg tctatagctt tgggatcatc ctgcaggaga tagcacttcg cagtggctcct 180
ttctacttgg agggcctgga cctcagcccc aaagagattg tccagaaggt acgaaatggt 240
cagcggccat atttccggcc aagcattgac cggacccaac tgaatgaaga gctagttttg 300
ctgatggagc gatgttgggc tcaggaccca gctgagcggc cagactttgg acagattaag 360
ggcttcattc ggcgctttaa caaggagggt ggcaccagca tattggacaa cctcctgctg 420
cgcatggaac agtatgccaa taacttggag aagctggtgg aggaacgcac acaggcctat 480
ctggaggaaa aacgcaaggc tgaagctctg ctctaccaa tcctacccca ttcagtggca 540
gagcagttaa a                                     551
```

<210> 817

<211> 386

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (11)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (372)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (377)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (378)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (379)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (384)

<223> n equals a,t,g, or c

<400> 817

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gggagacatt naagannttc aaggatccca atgcacccaa gaggcctcct tcggccttct 60
tcctcttctg ctctgagtat cgcccaaaaa tcaaaggaga acatcctggc ctgtccattg 120
gtgatgttgc gaagaaactg ggagagatgt ggaataacac tgctgcagat gacaagcagc 180
cttatgaaaa gaaggctgcg aagctgaagg aaaaatacga aaaggatatt gctgcatatc 240
gagctaaagg aaagcctgat gcagcaaaaa agggagtgtg caaggctgaa aaaagcaaga 300
aaaagaagga agaggaggaa gatgaggaag atgaagagga tgaggaggag gaggaagatg 360
aagaagatga angatgnnna cacntg                                     386
```

<210> 818

<211> 364

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (304)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (334)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (336)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (339)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (362)

<223> n equals a,t,g, or c

<400> 818

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ggcacgagaa aatgtcaggc ctgattatct aaaagctatt tggaatgtaa tcaactggga 60
gaatgtaact gaaagataca tggcttgcaa aaagtaaacc acgatcgtaa tgctgatcat 120
accctaataa tcccagcaag ataatgtcct ttcttctaag atgtgcatca agcctggtag 180
```

atactgaaaa ccctataagg tcctggataa tttttgtttg attattcatt gaagaaacat 240  
ttattttcca attgtgtgaa gtttttgact gttaataaaa gaatctgtca accatcaaaa 300  
aaanaaaaaa aaaaaaacctg gggggggggc ccgnanccna tttggccctt tggggggggg 360  
tntt 364

<210> 819

<211> 462

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (47)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (68)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (134)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (299)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (352)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (355)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (379)  
<223> n equals a,t,g, or c

<220>  
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<222> (452)  
<223> n equals a,t,g, or c

<220>  
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<222> (453)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (455)  
<223> n equals a,t,g, or c

<220>  
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<222> (456)  
<223> n equals a,t,g, or c

<400> 819  
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gggtgccgncc gctctagaac tagtggatcc cccgggctgc aggaattcgg cacgagctcc 120  
gccagacagc gggncaaaagt gctggcccat ttctatgggg tgaagctgga gggcaagggtg 180  
cccatgcaca agctgttctt ggagatgctc gaggccatga tggactgagg caaggggtgg 240  
gactgggtggg ggttcttgcc aggacctgcc ttagcatggg gtccagcccc aagggctgng 300  
gcggactggg gtctgggcat gccacagcct gctggcaggc cagggcatgc cntcncccng 360  
gggaacaggc cccacgccnt ttcttcccct tctaaggggt gttcaaaact gggaactttt 420  
ttccaggttt tgggcacatt gttgcccctt tnnanncata aa 462

<210> 820  
<211> 449  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (8)

<223> n equals a,t,g, or c

<400> 820

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gcgcgcantc cccgctccct ccccttcgg atgtggcttg agctgtaggc gcggagggcc 60
ggagacgctg cagacccgcg acccggagca gctcggaggc ggtgaataat agctcttcaa 120
gtctgcaata aaaaatggcc tccaacaaaa ctacattgca aaaaatggga aaaaaacaga 180
atggaaagag taaaaaagtt gaagaggcag agcctgaaga atttgtcgtg gaaaaagtac 240
tagatcgacg tgtagtgaat gggaaagtgg aatatttcct gaagtggag ggatttacag 300
atgctgacaa tacttgggaa cctgaagaaa atttagattg tccagaattg attgaagcgt 360
ttcttaactc tcagaaagct ggcaaagaaa aagatggtac caaaagaaaa tctttatctg 420
acagtggatc tgatgacagc aaacaaaga                                449
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<210> 821

<211> 453

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (392)

<223> n equals a,t,g, or c

<220>

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<222> (409)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (430)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (433)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (434)

<223> n equals a,t,g, or c

<400> 821

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cgcgtccggc ctgactgctt gttcgtctna ctgggtgtgag ctccagcatc ccctttgctc 60
gaaatggacc ccaactgctc ttgcgccact ggtggctcct gcacgtgcgc cggctcctgc 120
```

aagtgc aaaag agtgcaaatg cacctcctgc aagaagagct gctgttcctg ctgccccgtg 180  
ggctgtgccca agtggtgccca gggctgcgtc tgcaaaagggg catcggagaa gtgcagctgc 240  
tgtgcctgat gtgggaacag ctcttctccc atatgtaaat agaacaacct gcacaacctg 300  
gattttttta aaaatacaac actgagccat ttgctgcatt tcttttatac taaatatgtg 360  
actgacaata aaaacaattt tgacttttaa anaaaaaaaa aggggggcctt ttgggggtccc 420  
tgggggccan ttnggggat cgggaaagtt tcc 453

<210> 822

<211> 474

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (206)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (260)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (330)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (367)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (398)

<223> n equals a,t,g, or c

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<222> (402)

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<220>

<221> misc feature

<222> (426)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (455)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (461)

<223> n equals a,t,g, or c

<400> 822

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gaactaatgt tagtataagt aacatgaaaa cattctcctc cgcataagcc tgcgtcagat 60
taaaacactg aactgacaat taacagccca atatctacaa tcaaccaaca agtcattatt 120
accctcactg tcaacccaac acaggcatgc tcataaggaa aggttaaaaa aagtaaaagg 180
aactcggcaa atcttaccac gcctgnttac caaaaacatc acctctagca tcaccagtat 240
tagaggcacc gactgcccac gtgacacatg tttaacggcc gcggtaccct aaccgtgcaa 300
aggtagcata atcacttggt ccttaattan ggacctgtat gaatggctcc acgaggggtc 360
aagctgnctc ttacttttaa ccagtgaaaa tgacctgncc gngaagaggc gggcataaca 420
cagcangacc aagaagaccc tatggagctt taatntatta ngcaaacagt ccta 474
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<210> 823

<211> 463

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (441)

<223> n equals a,t,g, or c

<400> 823

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gccacgcgt ccgcccacgc gtccgccctc tcccaacatg gcggcctcag caaaaaagaa 60
gaataagaag gggaagacta tctccctaac agactttctg gctgaggatg ggggtactgg 120
tgagggaagc acctatgttt ccaaaccagt cagctgggct gatgaaacgg atgacctgga 180
aggagatggt tcgaccactt ggcacagtaa cgatgacgat gtgtataggc cgcctccaat 240
tgaccgttcc atccttccca ctgctccacg ggctgctcgg gaacccaata tcgaccggag 300
ccgtcttccc aaatcgccac cctacactgc ttttctagga aacctaccct atgatgttac 360
agaagagtca attaaggaat tctttcgagg attaaatatc agtgcagtgc gtttaccacg 420
tgaaccacgc aatccagaga ngttgaaagg tttgggtatg ctg 463
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<210> 824

<211> 599

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c



<220>  
<221> misc feature  
<222> (46)  
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<220>  
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<222> (88)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<222> (126)  
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<220>  
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<222> (183)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (203)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (207)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (209)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (231)  
<223> n equals a,t,g, or c

<220>  
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<220>

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<220>  
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<222> (253)  
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<220>  
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<222> (287)  
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<220>  
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<220>  
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<220>  
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<220>  
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<220>  
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<222> (329)  
<223> n equals a,t,g, or c

<220>  
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<220>  
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<222> (385)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<222> (420)  
<223> n equals a,t,g, or c

<220>  
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<222> (423)  
<223> n equals a,t,g, or c

<220>  
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<222> (440)  
<223> n equals a,t,g, or c

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<220>

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<222> (486)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (544)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (579)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (581)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (586)

<223> n equals a,t,g, or c

<400> 824

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cgtcttgctg ctgatgactt tagaggcnag tatgagacag atctggccat gcgccantct 120
gtgganaacg acatccatgg gctccgaaag gtcattgatg acaccaatat cacacgactg 180
canctggaga cagagatcga ggntctnang gaggatctgc tcttcatgaa naanaaccac 240
taagaggaan gancaaggcc tacaagccca nattgccanc tctgggntga ccgnggaggt 300
anatgcncnc aaatctcang acctcgcnna gancatggga gacatcccgg cccaatatga 360
cnagctggct cntaagaacc gagangaagc tagaccagta ctggtcttaa acanattnan 420
ganagcacca cagtgggtcan cacacagtct gctgaagttg gaactgctga aacnacgctc 480
acaganctta gacgtacagg ccattccttg gaaatatgaa ctggacttca ttagaaatct 540
gaangccctc ttggaaaaca accttgacgg gaagtggang ncccgntacg accttaca 599
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<210> 825

<211> 500

<212> DNA

<213> Homo sapiens

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<222> (79)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (319)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (336)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (368)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (391)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (415)  
<223> n equals a,t,g, or c

<220>  
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<222> (420)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (422)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (428)  
<223> n equals a,t,g, or c

<220>  
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<222> (440)  
<223> n equals a,t,g, or c

<220>  
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<222> (460)  
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<220>  
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<220>

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<222> (469)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (470)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (473)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (480)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (494)

<223> n equals a,t,g, or c

<400> 825

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atcttgccctg gagcaaggnt atcaatgctt acaattgtga agagcccaca gaaaagttac 120
cttttcccat catcgatgat aggaatcggg agcttgccat cctggtgggc atgctggatc 180
cagccagaga aggatgaaaa gggcatgcct gtgacagctc gtgtggtgtt tgtttttggg 240
cctgataaga agctgaagct gtctatcctc taccagcta ccactggcag gactttgatg 300
agatctcagg gtagtccanc tctctccagc tgacanagaa aaagggttgc acccagttga 360
ttggaggntg ggataggtat ggcctccacc ncctgagaga gcaaaaattt tccgnagagn 420
tnacaagngt ccttgcagan actcgtaaac cagctaagtn tngagtggnn ttngcaagtn 480
taatccattt ttcngagatc 500
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<210> 826

<211> 511

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (266)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (274)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (344)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (406)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (414)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (419)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (421)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (424)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (449)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (456)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (467)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (483)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (490)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (496)

<223> n equals a,t,g, or c

<400> 826

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gcgccccctc atcacgctcg ccatgcccgg aggtctgctt ctcggggacg tggctcccaa 120
ctttgaggcc aataccaccg tcggccgcgt cegtttccac gactttctgg gagactcatg 180
gggcattctc ttctcccacc ctcggggaact taccaccagt tgcaccacag agcttggcag 240
agctgcaaag tggcaccaga atttgncaag aggnatgtta agttgattgc cctttcaata 300
gacagtgttg aggaccatct tgcctggagc aaggatatca atgnttacia ttgtgagggg 360
ccacagaaag ttaccttttc ccatcatcgt gataggatcg gagttncat cctnttgga 420
ngtnggtcca cagagaaggc gaaagggang ccttnagtc gtgtggngtt tttttggccc 480
gtnagaagtn aagtgtatc ttaccagtac c 511
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<210> 827

<211> 519

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (186)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (479)

<223> n equals a,t,g, or c



<220>  
<221> misc feature  
<222> (487)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (500)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (517)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (519)  
<223> n equals a,t,g, or c

<400> 827  
tntnaacnga tttagggtgac actatagaag gtacgcctgc agtaccgggc cggaattccc 60  
gggtcgaccc acgcgtccgc cacgggtccgc actgcctctt ccccttctcg ttgggaactc 120  
tagtctcgcc tcgggttgca atggacccca actgctcctg tgccgctgag gtgtctcctg 180  
cacctngcca gtcctgcaag tgcaaagagt gcaaatgcac ctccctgcaag aagagctgct 240  
gtcctctgctg ccctgtgggt gtgccaagtg tgcccagggc tgcattctgca aagggggcatc 300  
ggagaagtgc agctgctgcy cctgatgtcg ggacagccct gctcccaagt acaaataagag 360  
tgacccgtaa aatccaggat tttttgtttt ttgctacaat cttgaccctt ttgctacatt 420  
cctttttttt tgtgaaatat gtgaataata attaaacact tagacttgaa aaaaaaana 480  
aaaaaanaaa aaagggggggn ccttttttagg gggttcncn 519

<210> 828  
<211> 442  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (2)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (11)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (14)  
<223> n equals a,t,g, or c

<220>  
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<222> (21)  
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<220>  
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<222> (25)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (128)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (438)  
<223> n equals a,t,g, or c

<400> 828  
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cccacgcgtc cgggagggga cacgggctca ttgcggtgtg cgccctgcac tctgtccctc 120  
actcgccncc gacgacctgt ctgcgcgagc gcacgccttg ccgccgcccc gcagaaatgc 180  
ttcggttacc cacagtcttt cgccagatga gaccggtgtc caggggtactg gctcctcatc 240  
tcactcgggc ttatgccaaa gatgtaaaat ttggtgcaga tgcccagagcc ttaatgcttc 300  
aaggtgtaga ccttttagcc gatgctgtgg ccgttacaat ggggccaaag ggaagaacag 360  
tgattattga gcagagttgg ggaagtccca aagtaacaag agatggtgtg actgttgcaa 420  
agtcattgac ttaaaagnaa at 442

<210> 829  
<211> 504  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (19)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (35)  
<223> n equals a,t,g, or c

<220>  
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<222> (122)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (139)  
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<220>  
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<222> (343)  
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<220>  
<221> misc feature  
<222> (362)  
<223> n equals a,t,g, or c

<220>  
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<222> (391)  
<223> n equals a,t,g, or c

<220>  
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<222> (489)  
<223> n equals a,t,g, or c

<400> 829  
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cgggttaccca cagtctttcg ccagatgaga ccggtgtcca ggggtactggc tcctcatctc 120  
antcgggctt atgccaaana tgtaaaattt ggtgcagatg cccgagcctt aatgcttcaa 180  
ggtgtagacc ttttagccga tgctgtggcc gttacaatgg ggccaaaggg aagaacagtg 240  
attattgagc agagttgggg aagtcccaa gtaacaaaag atggtgtgac tgttgcaaag 300  
tcaattgact taaaagataa atacaaaaac attggagcta aanttggtca agatgttgcc 360  
antaacacaa ttgaggagct ggggatggca ntaccatgct actgttatgg cacgtctata 420  
gccaaggaag gtttcgagaa ggtagcaag gtgctaatac atgggaatca ggagaggtgt 480  
gatgttagng ttgatgctgt attg 504

<210> 830  
<211> 582  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (9)  
<223> n equals a,t,g, or c

<220>  
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<222> (11)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (12)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (13)  
<223> n equals a,t,g, or c

<220>  
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<222> (15)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<400> 830  
gtcgtnacna nnntntatta aagggttcan aagctggagc tccaccgegg tgcggccgct 60  
ctagaactag tggatccccc gggctgcagg aattcggcac aattcggcac gagggaaggt 120  
gctgtgtaat cattaaggag cggaggcttt tggagctgct aaaatgccgg attacctcgg 180  
tgccgatcag cggaagacca aagaggatga gaaggacgac aagcccatcc gagctctgga 240  
tgagggggat attgccttgt tgaaaactta tggtcagagc acttactcta ggcagatcaa 300  
gcaagttgaa gatgacattc agcaacttct caagaaaatt aatgagctca ctggtattaa 360  
agaatctgac actggcctgg ccccaccagc actctgggat ttggctgcag ataagcagac 420  
actccagagt gaacagcctt tacaggttgc caggtgtaca aagataatca atgctgattc 480  
ggaggaccca aaatacatta tcaacgtaaa gcagtttgcc aagtttgtgg tggaccttag 540  
tgatcaggtg gcacctactg acattgaaga agggatgaga gt 582

<210> 831  
<211> 385  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (98)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (142)  
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<220>  
<221> misc feature  
<222> (274)  
<223> n equals a,t,g, or c

<220>  
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<222> (322)  
<223> n equals a,t,g, or c

<220>  
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<222> (356)  
<223> n equals a,t,g, or c

<220>  
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<222> (358)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (373)  
<223> n equals a,t,g, or c

<220>  
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<222> (374)  
<223> n equals a,t,g, or c

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ggccgctcag gcgcctgcgg ctgggtgagc gcacgcangg cggcgaggcg gcacgtgttt 120  
ctaggctcgtg gcgtcgggct tncggagctt tggcggcact aggggaggat ggcggagtct 180  
tcggataagc tctatcgagt cgagtacgcc aagagcgggc gcgcctcttg caagaaatgc 240  
agcgagacat cccaaggac tcgctccgga tggncatcat ggtgcacgc ccatgtttga 300  
tggaaaagtc cacatggtac anttctcctg cttctggaag tgggcaatcc atccgnanct 360  
gactttaagt gannggtttc ttata 385

<210> 832  
<211> 505  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (5)  
<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (162)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (333)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (335)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (380)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (405)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (411)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (435)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (438)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (461)  
<223> n equals a,t,g, or c

<220>  
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<222> (474)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (479)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (496)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (497)

<223> n equals a,t,g, or c

<400> 832

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gcgatgctgg caacacggcg gctgctcggc tggctcgcttc ccgcgcggac agcacccaag 120
aaaacctcat ttggctcgct gaaggatgaa gaccggattt tnaccaacct gtacggccgc 180
catgactgga ggctgaangt tccctgagtc gaggtgactg gtacaagaca aaggagatcc 240
tgctgaaggg gcccgactgg atcctgggcg agatcaagac atcgggttta aggggccgtg 300
gaggcgctgg ctcccccaat ggcctcaagt ggngnttcat gataaggcct cagatggcag 360
gccccagtat ttggtggtn aacgcaaacg aggggggagc cgggnaactg naagaaccgg 420
gggggttttta ggccnggntc ttaaaaagtt tttgaagggt nctttgttgg gggncggnc 480
atggggggccc ggttgnntat ttttt                                     505
```

<210> 833

<211> 444

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (336)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (355)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (380)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (444)

<223> n equals a,t,g, or c

<400> 833

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gctgcgagaa gacgacagaa ggggctctcc cctcgctccac cgctgccgcc tccttcttct 60
gccgctcctg gtgctgcttg tgtgctcgtt tgggtgcggac ctggtacctc ttttgtgaag 120
cggcagctga ggagactccg gcgctcgcca tggccgacga aaagcccaag gaaggagtca 180
agactgagaa caacgatcat attaatttga aggtggcggg gcaggatggt tctgtggtgc 240
agtttaagat taagaggcat acaccactta gtaaactaat gaaagcctat tgtgaacgac 300
agggattgtc aatgaagcag atcagattcc gatttnacgg gcaaccaatc aatgnaacag 360
acacacctgc acagttgggn aatgggagga tgaagatacc aatgatgtgt tccaaacagc 420
agacgggagg tgtctactga aaan                                         444
```

<210> 834

<211> 370

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (141)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (142)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (322)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (331)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (336)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (346)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (365)



<223> n equals a,t,g, or c.

<400> 834

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cccacgcgtc cgcccacgcg tccgcgcgcg tcgctatggc gtcgctcacc gtgaaggcct 60
accttctgga caaggaggac ggggcgcgcg agattcgccg cttcagcttc tgctgcagcc 120
ccgagcctga ggcgggaagc nnggctgcgg cgggtccggg acccttgcca gcggctgctg 180
agccgggtgg ccgcctgtt cccgcgcgtg cggcctggcg gctttccagg cgcactaccg 240
cgattgagga cggggatttg ttgctttttt ccattgacga ggatttgaca tgggcatgtt 300
ctacgttgaa gatgaatctt tncgatttta natttnaaga gaaaanattt ccggcgggga 360
cacgncaagt                                     370
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<210> 835

<211> 317

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (174)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (215)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (258)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (270)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (288)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (301)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (311)

<223> n equals a,t,g, or c

<400> 835

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cccacgcgtc cgcccacgcg tccgcccacg cgtccgccc cgcgtccgca atgagcttcg 60
tgttgcccct gaagagcatc ccaccctgct cacggaggca cccctgaacc ccaaggccaa 120
ccgggagaaa atgactcaaa ttatgtttga gactttcaat gtccaagcca tgtntttggc 180
tatccaggcg gtgctgtctc tctatgcctc tggangcaca atggaatcgt gctggactct 240
ggagatggtg tcacccanaa tgtcccaatn tatgagggct atgcttgnc ccatgcaata 300
natgggtctg natttgg 317
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<210> 836

<211> 382

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (44)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (80)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (85)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (117)

<223> n equals a,t,g, or c

<220>

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<222> (142)

<223> n equals a,t,g, or c

<220>

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<222> (143)

<223> n equals a,t,g, or c

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<222> (190)

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<220>

<221> misc feature

<222> (211)

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<220>

<221> misc feature

<222> (230)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (261)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (271)

<223> n equals a,t,g, or c

<220>

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<222> (311)

<223> n equals a,t,g, or c

<220>

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<222> (339)

<223> n equals a,t,g, or c

<220>

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<222> (348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (353)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (374)

<223> n equals a,t,g, or c

&lt;400&gt; 836

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ggcgacggtg cgggcttcan agggncctgt ttacaaagga gtctgcaa at gcttctnccg 120  
gtccaagggc catgggttca tnnccccagc tgatggcggc cccgacatct tctgcacat 180  
ctttgaatgn gnaaggggga gtatgtacca ntggaaggcg acgaggtcan ctataaaatg 240  
tgcttccatc ccaccaaga ntgagaagct ncaagccgtg ggagttcgtc atcaatcacc 300  
tggcaccagg naccaagtat gagacctggt tttggacant ttcacantt tcntaggaga 360  
ttggttgga gcancccttt tt 382

&lt;210&gt; 837

&lt;211&gt; 375

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 837

cggagtttct cctcggggtc ggagcaggag gcacgcggag tgtgaggcca cgcattgagcg 60  
gacgctaacc ccctccccag ccacaaagag tctacatgtc taggggtctag acatgttcag 120  
ctttgtggac ctccgggtcc tgctcctctt agcggccacc gccctcctga cgcacggcca 180  
agaggaaggc caagtcgagg gccaagacga agacatccca ccaatcacct gcgtacagaa 240  
cggcctcagg taccatgacc gagacgtgtg gaaacccgag ccctgccgga tctgcgtctg 300  
cgacaacggc aaggtgttgt gcgatgacgt gatctgtgac gagaccaaga actgcccccg 360  
cgccgaagtc cccga 375

&lt;210&gt; 838

&lt;211&gt; 484

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (1)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (8)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (14)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (18)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

<222> (36)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (117)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (138)  
<223> n equals a,t,g, or c

<220>  
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<222> (153)  
<223> n equals a,t,g, or c

<220>  
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<222> (187)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (273)  
<223> n equals a,t,g, or c

<220>  
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<222> (300)  
<223> n equals a,t,g, or c

<220>  
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<222> (352)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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<220>

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<222> (391)

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<220>

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<222> (405)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (425)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (445)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<400> 838

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ccgggtcgac ccacgcgtcc ggccagccgt tcacgcgttc ggtcctcctt ggctgantca 120
ccgccctcgc cgccgcanca tggacgcccc cangcaggtg gtcaactttg ggcctggtcc 180
cgccaanctg ccgcactcag tgttggttaga gatacaaaag gaattattag actacaaagg 240
aattggcatt agtggttcttg aaatgantca cangtcatca gattttgcct agattattan 300
caatacagaa aatcttggtg ggggaattgct aactgttcca gacaactata angtgatttn 360
tctggcangg aagtgggtgc ggccaattca ntgctgtccc ttaancctca ttggcttgaa 420
agcangaaag tgtgcggact atgtngtgac aggaacttgg tcagctaagg gcgcanaaaa 480
aacc 484
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<210> 839

<211> 473

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

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<220>

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<222> (224)

<223> n equals a,t,g, or c .

<220>

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<222> (237)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (272)

<223> n equals a,t,g, or c

<220>

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<222> (281)

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<220>

<221> misc feature

<222> (332)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (363)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (411)

<223> n equals a,t,g, or c

<220>

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<222> (425)

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<222> (431)

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<220>

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<222> (437)

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<222> (446)

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<220>

<221> misc feature

<222> (454)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (462)

<223> n equals a,t,g, or c

<400> 839

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ccatgtattc ggctgctggc agagacttgg ggatggaacc gcacagagcc gcggggccctt 120
tgccagctgc gaattttcgc cctgacgttt tcaacggagg tgactatact gggcaattgc 180
tgagagaagat ttgccaatt gttgcttctg aatactcgat tgantgaaag ggtttttnaat 240
tcatacgcgg ggtagcccc aaatgttaca anttaaacag ncaaaacagt ccattgggatg 300
cagcggtttt ccatggagac tgttcttacg gntgacaaag attttttgaa gcaagactaa 360
agntgtatta ggcattccca ttattaaggc ctggattacg ggggggcatt nctgcaatgc 420
tgtcnaaaat ncccgtnttt caaggngttt tttnccctac tntggtttac aac 473
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<210> 840

<211> 279

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (62)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (104)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (173)

<223> n equals a,t,g, or c



<220>  
<221> misc feature  
<222> (229)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (244)  
<223> n equals a,t,g, or c

<220>  
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<222> (247)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (260)  
<223> n equals a,t,g, or c

<220>  
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<222> (277)  
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tntctacata aaatacaaaa acttagatgg gcatggtgct gtgngcctat agtcccacta 120  
cttggtggggc taaggcagga ggatcacttg agccccggag gtcgaggcta cantgcgcca 180  
agagtgcact actgtactcc agccagggca aggagagcga gaccctgtnt caaataaata 240  
aatnaantta attaaataan taatttaaata aaaagcnaa 279

<210> 841  
<211> 234  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (31)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (49)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (64)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (69)  
<223> n equals a,t,g, or c

<220>  
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<222> (70)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (103)  
<223> n equals a,t,g, or c

<220>  
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<222> (104)  
<223> n equals a,t,g, or c

<220>  
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<222> (115)  
<223> n equals a,t,g, or c

<220>  
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<222> (118)  
<223> n equals a,t,g, or c

<220>  
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<222> (123)  
<223> n equals a,t,g, or c

<220>  
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<222> (172)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (210)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (214)  
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (216)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (230)

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<400> 841

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agгнаaggnn tggcgaaacg gtgtattacc gtttgctacc agннаagaac gtganganaa 120
gangggcacg aggcctggtt tttaaggagt gtcgccagag tgcctcgatg anacgggtat 180
tggcggtata tggagttaaa agatgaccan ctanangact gagctagtan cagg      234
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<210> 842

<211> 460

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (383)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (445)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (447)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (451)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (453)

<223> n equals a,t,g, or c

&lt;400&gt; 842

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aaggcgccaa aaaggagacc aagaagaaag tggttgatcc attttctaag aaagattggg 120  
atgatgtgaa agcacctgct atgttcaata taagaaatat tggaaagacg ctcgtcacca 180  
ggacccaagg aacccaaaatt gcctctgatg gtctcaaggg tcgtgtgttt gaagtgaagtc 240  
ttgctgattt gcagaatgat gaagttgcat ttagaaaatt caagctgatt actgaagatg 300  
ttcagggttaa aaactgcctg actaacttcc atggcatgga tcttaccctg gacaaaatgt 360  
gttccatggg caaaaaatgg canacaatga ttgaagctca cgttgatgtc aagactaccg 420  
atgggttactt gcttcgctgt tctgngntgg ntntactaaa 460

&lt;210&gt; 843

&lt;211&gt; 597

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (6)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (7)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (16)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (46)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (189)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (412)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 843

cagtgnngac accaanccat cactaaaggg aacaaaagct ggagcncac cgcggtgcgg 60  
ccgctctaga actagtggat cccccgggct gcaggaattc ggcacgaggt ccttccgagg 120  
aagctaaggc tgcgttgagg tgaggccctc acttcatccg gcgactagca ccgcgtccgg 180  
cagcgccanc ctacactcgc ccgcgccatg gcctctgtct ccgagctcgc ctgcacttac 240  
tcggccctca ttctgcacga cgatgagggt acagtcacgg aggataagat caatgccttc 300

attaaagcag ccggtgtaaa tggtgagcct ttttgccctg gcttgtttgc aaaggccctg 360  
gccaacgtca acattgggag cctcatctgc aatgtagggg ccggtggacc tntccagca 420  
gctggtgctg caccagcagg aggtcctgcc cctccactg ctgctgctcc agctgaggag 480  
aagaaagtgg aagcaaagaa agaagaatcc gaggagtctt atgatgacat gggcttttgt 540  
ctttttgact aaacctcttt tataacatgt tcaataaaaa gctgaacttt acaaaaa 597

<210> 844

<211> 502

<212> DNA

<213> Homo sapiens

<220>

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<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

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<222> (7)

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<220>

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<222> (8)

<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<220>  
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<220>  
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<222> (399)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<400> 844

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ggngggccgct ctagtaacta gtggatcccc cggnctgca gggaattcgg gcacgagcaa 120  
gccaaagatgg gtgcnatata agtacatcca ggtagctatg gagaaagaag cagtctgatg 180  
tcatgcgctt tcttctgagg gtccgctgct ggcagtaccg ccancctctct gctctccaca 240  
gggnctcccc gccccacccg gcctgataaa gcgcgncgac tgggctacaa ggccaagcaa 300  
ggttacgtta tatataggat tcgtgttcgc cgtgggtggcc gaaaacgccc agttcctaag 360  
ggtgcaactt acggcaagcc tgtccatcat ggtgttaanc anctaaagtt tgctcgaagc 420  
cttcagtccg ttgcagagga gcgagctgga cgccactgtg gggctctgag agtcctgaat 480  
tcttactggg ttggtgaaga tt 502

<210> 845

<211> 601

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<400> 845

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tctagaacta gtggatcccc cgggctgcag gaattcggca gagctttgct tttccatccg 120  
cctttgatcg tcttcctctt cagccatcca ggtaagccaa gatgggtgca tacaagtaca 180  
tccaggagct atggagaaaag aagcagtctg atgtcatgcg ctttcttctg aggggtccgct 240  
gctggcagta ccgccagctc tctgctctcc acagggtctcc ccgccccacc cggcctgata 300  
aagcgcgccg actgggctac aaggccaagc aaggttacgt tatatatagg attcgtgttc 360  
gccgtggtgg ccgaaaacgc ccagttccta aggggtgcaat tacggcaagc ctgtccatca 420  
tggtgttaac agctaaagtt tgctcgaagc cttcagtccg ttgcagagga gcgagctgga 480  
cgccactgtg gggctctgag agtcctgaat tcttactggg ttggtgaaga ttccacatac 540  
aaattttttg aggttatcct cattgatcca ttccataaag ctatcagaag aaatcctgac 600  
a 601

<210> 846

<211> 455

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (42)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (115)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (171)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (181)

<223> n equals a,t,g, or c

<400> 846

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aatntaatt aaantcacn tcactaangg ancaaagctg gngctccacc gcggtggcgg 60
ccgctctagc actagtggat cccccgggtc tgcaggaatt cggcacgagc gcagnaagcg 120
agatgacgag ggaacgtcat cgtttggaag gcgtcgcaat aagacgcaca ngttgtgccg 180
ncgctgtggc tctaaggcct accaccttca gaagtcgacc tgtggcaaat gtggctaccc 240
tgccaagcgc aagagaaaagt ataactggag tgccaaggct aaaagacgaa ataccaccgg 300
aactgggtcga atgaggcacc taaaaattgt ataccgcaga ttcaggcatg gattccgtga 360
aggaacaaca cctaaaccca agagggcgagc tgttgacgca tccagttcat cttaagaatg 420
tcaacgggta gtcattgcaat aaatgttctg gttttt 455
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<210> 847  
<211> 428  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (5)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (21)  
<223> n equals a,t,g, or c

<400> 847  
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actagtggat ccccgggct gcaggaattc ggcacgaggt cgcggcgaca tggccaaacg 120  
taccaagaaa gtcgggatcg tcggtaaata cgggaccgc tatggggcct ccctccggaa 180  
aatggtgaag aaaattgaaa tcagccagca cgccaagtac acttgctctt tctgtggcaa 240  
aaccaagatg aagagacgag ctgtggggat ctggcactgt ggttcctgca tgaagacagt 300  
ggctggcggg gcctggacgt acaataccac ttccgctgtc acggtaaagt ccgccatcag 360  
aagactgaag gagttgaaag accagtagac gctcctctac tctttgagac atcactggcc 420  
tataataa 428

<210> 848  
<211> 348  
<212> DNA  
<213> Homo sapiens

<400> 848  
tcgcggcgac atggccaaac gtaccaagaa agtcgggatc gtcggtaaata acgggacccg 60  
ctatggggcc tccctccgga aaatggtgaa gaaaattgaa atcagccagc acgccaagta 120  
cacttgctct ttctgtggca aaaccaagat gaagagacga gctgtgggga tctggcactg 180  
tggttcctgc atgaagacag tggctggcgg tgcctggacg tacaatacca cttccgctgt 240  
cacggtaaag tccgccatca gaagactgaa ggagttgaaa gaccagtaga cgctcctcta 300  
ctctttgaga catcactggc ctataataaa tgggttaatt tatgtaac 348

<210> 849  
<211> 365  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (216)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (217)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (226)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (280)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (312)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (315)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (334)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (361)  
<223> n equals a,t,g, or c

<400> 849  
ggcagagcct aggtcgcggc gacatggcca aacgtaccaa gaaagtcggg atcgtcggta 60  
aatacgggac ccgctatggg gcctccctcc ggaaaatggt gaagaaaatt gaaatcagcc 120  
agcacgccaa gtacacttgc tctttctgtg gcaaaaccaa gatgaagaga cgagctgtgg 180  
ggatctggca ctgtggttcc tgcatagaaga cagtgnntgg cggtnctgg acgtacaata 240  
ccacttccgc tgtcacggtt aaagtcgccc atcagaagan tgaaggagtt gaaagaccat 300  
tagacgttcc tntantcttt gggacatcat tggntataa ttaatgggtt aatttttggt 360  
naaaa 365

<210> 850  
<211> 276  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (5)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (11)  
<223> n equals a,t,g, or c

<220>  
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<222> (36)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (47)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (75)  
<223> n equals a,t,g, or c

<400> 850  
gacantaaga ngggaacaaa aaaacatgga acatgnacac agcaggntgg caggcacagc 60  
atcataggaa ctagntggat cccccagggc tgcaggaatt cggcacgagg ccgaaaggaa 120  
agaaggccaa gggaaagccc agctgtcgtg aagaagcagg aggctaagaa agtggtgaat 180  
cccctgtttg aagcctaaga attttggcat tggacaggac atccagccca aaagagactc 240  
acccgctttg tgaaatggct atatcagggt gcagcg 276

<210> 851  
<211> 430  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (70)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (94)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (174)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (362)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (364)

<223> n equals a,t,g, or c

<400> 851

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gctgcgagaa gacgacagaa aaaaaaaaaa aaaaaaaaaa agcgcgggccg ctgtcgagaa 60
gacgacagan ggggggccccg gaagataagg ccgntcgctg acgccgtgtt tctcttttcg 120
gccgcgctgg tgaacaggac ccgtcgccat gggccgtgtg atccgtggac agangaaggg 180
cgccgggtct gtgttccgcg cgacagtga gacccgtaaa ggcgctgcgc gctgcgcgcc 240
gtggatttcg ctgagcggaa cggctacatc aagggcatcg tcaaggacat catccacgac 300
ccggggccgcg gcncgcccct cgccaaggtg gtcttccggg atccgtancg ttttaagaagc 360
gngncggagc tggtcattgc cgccgagggc attcacacgg gccagtttgt gtattgccgc 420
aaaaaggccc                                     430
```

<210> 852

<211> 420

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (36)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (81)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (84)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (92)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (101)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (176)

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<220>

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<222> (247)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (263)

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<220>

<221> misc feature

<222> (280)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (285)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (289)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (302)

<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (317)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (372)  
<223> n equals a,t,g, or c

<220>  
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<222> (399)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (404)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (411)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (418)  
<223> n equals a,t,g, or c

<400> 852  
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cggtcaagat tcagcttcac ncgnaagcca cnggcattggc ngaggaaggc attgctgctg 120  
gaggtgtaat ggacgttaat actgctttac aagaggttct gaagactgcc ctcattcacg 180  
atggcctagc acgaggaatt cgcgaagctg ccaaagcctt agacaagcgc caagcccatc 240  
tttgtgngct tgcatccaac tgngatgagc ctatgtatgn caagntggng gaggcccttt 300  
gngctgaaca ccaaatnaac ctaattaagg gttgatgaca acaagaaact aggagaatgg 360  
gtaggccttt gnaaaaaatga cagagagggg aaaccccgna aagnggttgg nttgcagntg 420

<210> 853  
<211> 278  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (126)  
<223> n equals a,t,g, or c

<220>  
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<222> (127)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (128)

<223> n equals a,t,g, or c

<400> 853

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ctcgtgccga attcggcacg agccgccatc atgggtcgca tgcattgctcc cgggaagggc 60
ctgtcccagt cggctttacc ctatcgacgc agcgtcccca cttggttgaa gttgacatct 120
gacgannnga aggagcagat ttacaaactg gccaaagaagg gccttactcc ttcacagatc 180
ggtgtaatcc tgagagattc acatggtgtt gcacaagtac gttttgtgac aggcaataaa 240
attttaagaa ttcttaagtc taagggactt gctcctga 278
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<210> 854

<211> 408

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (104)

<223> n equals a,t,g, or c

<400> 854

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ttctcttttc ctcttgggt gtctgaagat agatcgccat cgtnaacgac accgtaacta 120
tcgcactag aaagtccatg accaaccgac tacttcagag gaaacaaatg gtcattgatg 180
tccttcaccc cgggaaggcg acagtgccta agacagaaat tcgggaaaaa ctagccaaaa 240
tgtacaagac cacaccggat gtcattcttg tatttggatt cagaactcat tttggtggtg 300
gcaagacaac tggttttggc atgatttatg attccctgga ttatgcaaag aaaaatgaac 360
ccaaacatag acttgcaaga catggcctgt atgagaagaa aaagacct 408
```

<210> 855

<211> 424

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (288)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (345)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (377)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (382)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (402)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (422)  
 <223> n equals a,t,g, or c

<400> 855  
 gggtcgaccc acgcgtccgc tatgacacca agggtcgctt tgctgtacat cgtattacac 60  
 ctgaggaggc caagtacaag ttgtgcaaag tgagaaagat ctttgtgggc acaaaaaggaa 120  
 tccctcatct ggtgactcat gatgcccgca ccatccgcta ccccgatccc ctcatcaagg 180  
 tgaatgatac cattcagatt gatttggaga ctggcaagat tactgatttc atcaagttcg 240  
 aactggtaa cctgtgtatg gtgactggag gtgctaacta gggaagantg gtgtgatcac 300  
 caacagagag aggcaccctg ggatcttttg gacgtgggtt cactngaaag atggccaatg 360  
 ggaacagett tgccaantcg anttttccaa cttttttgtt anttgggcaa ggggcaacaa 420  
 anca 424

<210> 856  
 <211> 608  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc feature  
 <222> (270)  
 <223> n equals a,t,g, or c

<220>  
 <221> misc feature  
 <222> (303)



<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (339)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (529)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (537)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (555)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (575)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (599)

<223> n equals a,t,g, or c

<400> 856

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gggcatcttt cgggacaatt ggcacaagcg ccgcaaaacc gggggcaaga gaaagcccta 60
ccacaagaag cggaagtatg agttggggcg cccagctgcc aacaccaaga ttggcccccg 120
ccgcatccac acagtccgtg tgcggggagg taacaagaaa taccgtgccc tgaggttgga 180
cgtggggaat ttctcctggg gctcagagtg ttgtactcgt aaaacaagga tcatcgatgt 240
tgtctacaat gcatctaata acgagctggn tcgtaccaag accctggtga agaattgcat 300
cgnqctcatc gacagcacac cgtaccgaca gtggtaccna gtcccactat gcgctgcccc 360
tggcccgcga gaagggagcc aagctgactc ctgaggaaga agagatttta aacaaaaaac 420
gatctaaaaa aattcagaag aaatatgatg aaaggggaaa agaattgcaa aatcaagcaa 480
gtcttctgga ggagcagttt cagcagggca agcttcttgc gtgcatcgnt ttaaggnccg 540
gacagtgtgg ccgancagat ggctatgtgc taaanggcaa agagtggagt ctatcttang 600
aaaacaag                                     608
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<210> 857

<211> 450

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature  
<222> (368)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (389)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (440)  
<223> n equals a,t,g, or c

<400> 857  
ggcacgagtg gggccgtctt cctcatcctt cctttttctc ggggctcccg tggagccacc 60  
tggacatgag acccgccctc aatgccgaag cctctcggaa gcaatctttc gggacggaag 120  
ttaagtagcc ccgagcggga ggctgtggcg gaagtggtcg cgttaccgck tgtttgtgcy 180  
catgcgccac tctcgtctgg ccgccgcgct ttcaggaggt gcttttggtt ctctccggtc 240  
ttgtccacgc taggggggtgc acgtackccc aactgtggtc gcgctctcac cctttctgct 300  
gkctcgtgg cccctcgcg atggcgggca tcctgtttga ggatattttc gatgtgaagg 360  
atattgancc ggaaggcaag aagtttganc gagtgtctcg ackgcattgt gagagtgaay 420  
ttycaagatg gwvbkaaacn aagakgtaaa 450

<210> 858  
<211> 467  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (6)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (9)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (10)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (17)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (18)  
<223> n equals a,t,g, or c

<220>  
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<222> (20)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (38)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (41)  
<223> n equals a,t,g, or c

<220>  
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<222> (45)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (49)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (456)  
<223> n equals a,t,g, or c

<400> 858  
gaaaanacnn gaaccannan gaagaatcga aagagctntg ncagncttnc tcaaaaagtc 60  
cggaagctg aaagtccccg aatgggtgga tacggtcaag ctggccaagc acaaagagct 120  
tgctccctac gatgagaact ggttctacac gcgagctgct tccacagcgc ggcacctgta 180  
cctccggggg ggcgctgggg ttggctccat gaccaagatc tatgggggac gtcagagaaa 240  
cggcgtcatg cccagccact tcagccgtgg ctccaagagt gtggcccgcg gggtcctcca 300  
agccctggag gggctgaaaa tgggtgaaaa ggaccaagat ggcggtcgca aactgacacc 360  
tcagggacaa agagatcttg acagaatcgc cggacaggtg gcagcttcca acaagaagca 420  
ttagaacaaa ccatgctggg gtaataaatt ggcctnattc gtaaaaa 467

<210> 859  
<211> 441  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (30)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (378)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (396)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (403)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (405)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (422)

<223> n equals a,t,g, or c

<400> 859

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gggtcgaccc acgcggtccga aaaactgtnn gggagcttga caaaggcatg caggagagaa 60
caggagcagc cacagccagg agggagagcc ttccccaagc aaacaatcca gagcagctgt 120
gcaaacaacg gtgcataaat gaggcctcct ggaccatgaa gctagtccctg agctgcgtcc 180
cggagcccac ggtggtcatg gctgccagag cgctctgcat gctggggctg gtcctggcct 240
tgctgtcctc cagctctgcg agggagttac gtggggcctg tctgccaaac cagtgtgccg 300
tgccagccaa ggacagggtg gaattgcggc ttacccccat gttcaccccc aaggattgca 360
aaaaccgggg ttgctgcntt tgaattccag gatccnggat ggncttggtg ttttcaagcc 420
cntgccagga agcagaagca c                                     441
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<210> 860

<211> 423

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (369)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (379)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (401)

<223> n equals a,t,g, or c

<400> 860

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tgggctacct gcattcactg aacatcgttt atagagactt aaaaccagag aatattttgc 60
tagattcaca gggacacatt gtccttactg acttcggact ctgcaaggag aacattgaac 120
acaacagcac aacatccacc ttctgtggca cgccggagta tctcgacact gaggtgcttc 180
ataagcagcc ttatgacagg actgtggact ggtgggtgcct gggagctttc ttgtatgaga 240
tgctgtatgg cctgccgcct ttttatagcc gaaacacagc tgaaatgtac gacaacattc 300
tgaacaagcc tctccagctg aaaccaaata ttaccaattc cgcaagacac ctcctggaag 360
ggctcctgna gaaggacang acaaagcggc tcggggggcaa nggtgacttc atggagatta 420
aga 423
```

<210> 861

<211> 429

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (392)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (403)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (425)

<223> n equals a,t,g, or c

<400> 861

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ggcacgagct cgtgcgcttt ggggctgctg ggactcgcgt cggttggcga ctcccggacg 60
taggtagttt gttgggccgg gttctgaggc cttgcttctc ttacttttc cactctaggc 120
cacgatgccg cagtaccaga cctgggagga gttcagccgc gctgccgaga agctttacct 180
cgctgaccct atgaaggcac gtgtggttct caaatatagg cattctgatg ggaacttgtg 240
tgtaaagta acagatgatt tagtttgttt ggtgtataaa acagaccaag ctcaagatgt 300
aaagaagatt gagaaattcc acagtcaact aatgcgactt attgtagncc aaggagcccn 360
caatttacca tgggaactga gtgaatggtt tnaatgagac ttntcgggta cttagggagt 420
aaaancttt                                     429
```

<210> 862

<211> 596

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (40)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (61)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (155)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (209)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (286)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (288)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (344)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (400)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (418)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (488)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (492)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (497)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (544)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (545)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (554)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (557)

<223> n equals a,t,g, or c

<400> 862

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cgcggggcgcn cncgctctag aactagtgga tcccctgggn ctgcaggaat tcggcanagg 60
naagtctccc agaagacagt gattatcaag gaagaggaag aagatactgc agagaagcca 120
gggaaggaag aggatgtcgt gactccaaaa ccagncaaga gaaagagaga ccaggcagag 180
gaggagccca acagaatacc aagccgcanc ctccgacgga ccaaacttaa ccaagaatca 240
acagccccca aagtgtctctt cacaggagtgt gtggatgtctc gggganancg ggctgtgtctg 300
gcatgggggg aaatctggct gggtcacggt caaagcttcc cacnggttca tggatcgcat 360
ccgccggaca ttcaattcct gtgtggccct ggggcggggn attccccatt ctgttccngg 420
gatgggtggc atcattcccg tcaagctggt ttctttctta ccccgatga atatgtggtg 480
aacgaccngg cnccaanaga agaatttggt tttactttca agacgcattg agcagggtcc 540
gganngaagg tgcntanaag ggtatgaatt tatgtgaacc tggatccacc acacca 596
```

<210> 863

<211> 441

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (361)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (413)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (434)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (435)

<223> n equals a,t,g, or c

<400> 863



ggcagcttgg cagtgaccaa gaatgatggg cactaccgtg gagatcccaa ctggtttatg 60  
aagtatgtgg cccccagggg gcttgggtct ccgcatgggg tgggaggtgg cttgttctaa 120  
ggagcttgcg agaaggatta ggggaagcag atagccaaga aaggataaag tgagggctctg 180  
ggatggggaa taatgggtcc ttaatactcc ttgaccctc cctttccacc ctctgcgct 240  
cagtctccct agcctatgag gcaagctaga ttagggaaaa aaagtgcaca ggaaggcaat 300  
ggggattggg ctaagacgta acacagggat cagaaaacgg gtggaaaaca cacatttcta 360  
ncaagtcttt aacccggttc ctcccccttct taggaaagcg cagagcttaa gangggantt 420  
cacagagagc cagnngcagg a 441

<210> 864

<211> 355

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (297)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (322)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (325)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (347)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (349)

<223> n equals a,t,g, or c

<400> 864

gacatcacca cggcggcagc catttaaacc cctcaccag ccagcgcccc atcctgtctg 60  
tccgaaccca gacacaagtc ttcactcctt cctgcgagcc ctgaggaagc cttctttccc 120  
cagacatggc caacaagggt ccttcctatg gcatgagccg cgaagtgcag tccaaaatcg 180  
agaagaagta tgacgaggag ctgggaggag cggtcgttgg agtgggtcca tagtggcagt 240  
gtgggcccctg atgtggggcc ggcccagacc gtggggcgct tggggctttc caggttntgg 300  
cttgaagatt ggcgttgatt tntgnagcaa gctgggttgg aacagcntnt taccc 355

<210> 865

<211> 499

<212> DNA

<213> Homo sapiens

<220>  
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<222> (330)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (343)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (353)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (388)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (391)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (395)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (406)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (412)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (425)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (427)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (435)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (444)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (462)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (465)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (469)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (480)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (490)  
<223> n equals a,t,g, or c

<400> 865  
aattcggcac gagactggac caaattagac agagagaatc agatatcacc aaggagagaa 60  
ttcagaagat cctggcaact ggtgccaatg ttattctaac cactggtgga attgatgata 120  
tgtgtctgaa gtattttgtg gaggctggtg ctatggcagt tagaagagtt ttaaaaaggg 180  
accttaaacg cattgccaaa gcttctggag caactattct gtcaaccctg gccaatttgg 240  
aaggtgaaga aacttttgaa gctgcaatgt tgggacaggc agaagaagtt gtacaggaga 300  
gattttgtga tgatgagctg atcttaatcn aaatacctag ggncgacggt ttnatcgggt 360  
tttttcgggg ggcaaaattt tcccgggtnt nggnggggg cctttnaaag gncctttttg 420  
ggagngnttt tgggnaaatt gggnccccgg gggttttaa gncctctnt cccaaaattn 480  
ccccaggtg ggacctttt 499

<210> 866  
<211> 353  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (31)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (41)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (42)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (45)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (52)  
<223> n equals a,t,g, or c

<220>  
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<222> (83)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (236)  
<223> n equals a,t,g, or c

<220>  
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<222> (244)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (249)  
<223> n equals a,t,g, or c

<220>  
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<222> (265)  
<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (284)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (294)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (298)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (349)  
<223> n equals a,t,g, or c

<400> 866  
attgctggaa aactgcagga tggactcttg nacatcacta nntgnagttt tntggctccc 60  
tggaacagcc tgagcttagc tcncgccggg gcttcaccaa gacctacact gttggctgta 120  
aggaatgcac agtggtttccc tgtttatcca tcccctgtca aactgcagag tggcactcat 180  
tgcttggtgga cggaccagct cctccaaggc tctgaaaagg gcttccagtt cccgtnaacc 240  
ttgnctggnc tgacctcggg aagcnagggg ctgtgacacc tggnagtgcc ctgnggtnc 300  
cagaatagcc tggaatcctg tcccgaagtt ggtaagttgg aagcctttna cat 353

<210> 867  
<211> 566  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (307)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (425)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (499)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (514)  
<223> n equals a,t,g, or c

&lt;400&gt; 867

```
ccgcgcgcgc gtcccgtcgc cgccgccgcc gccgcagacc cctcgggtctt gctatgtcga 60
gctcaccctgt gaagcgtcag aggatggagt ccgcgctgga ccagctcaag cagttcacca 120
ccgtggtggc cgacacgggc gacttccacg ccatcgacga gtacaagccc caggatgcta 180
ccaccaaccc gtccctgatc ctggccgcag cacagatgcc cgcttaccag gagctggtgg 240
aggaggcgat tgcctatggc cggaagctgg gcgggtcaca agaggaccag attaaaaatg 300
ctattgntaa actttttgtg ttgtttggag cagaaatact aaagaagatt ccgggccgag 360
tatccacaga atagacgcaa ggctctcctt tgataaagat gcgatgggtgg ccagagccag 420
gcgntcatc gagctctaca aggaagctgg gatcagcaag accgaattct tataaagctg 480
tcatcaacct ggggaaggna ttcaggctgg aaangagctc gaaggagcag cacggcatcc 540
actgcaacat gacttaatct tctcct 566
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&lt;210&gt; 868

&lt;211&gt; 413

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (193)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (360)

&lt;223&gt; n equals a,t,g, or c

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (389)

&lt;223&gt; n equals a,t,g, or c

&lt;400&gt; 868

```
ggcacgagcg gcgtcttagc ggctgcgcgg tggtgtctcc gtcctttcgg tccaggcggc 60
ggcagggctg agccagcgac gccctccatt cactctccgc gcccgttctc cggctgtcct 120
cccgttccgc tgcccgccct gccaccatga cggaacaggc catctccttc gccaaagact 180
tcttgccgg agnatcgccg ccgccatctc caagacggcc gtggctccga tcgagcgggt 240
caagctgctg ctgcaggtcc agcacgccag caagcagatc gccgccgaca agcagtacaa 300
gggcatcgtg gactgcattg tccgcatccc aaggagcagg cgtgtgtcct tctggagggn 360
aactttgcaa cgtcatcgct acttcccant caagcctcaa ttcgcttcaa gat 413
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&lt;210&gt; 869

&lt;211&gt; 600

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; misc feature

&lt;222&gt; (143)

&lt;223&gt; n equals a,t,g, or c

<220>

<221> misc feature

<222> (329)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (337)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (398)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (547)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (548)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (555)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (583)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (588)

<223> n equals a,t,g, or c

<400> 869

gggactggag caaggctcgtc ctggcctatg agcctgtgtg ggccattggt actggcaaga 60  
ctgcaacacc ccaacaggcc caggaagtac acgagaagct ccgaggatgg ctgaagtcca 120  
acgtctctga tgcggtggct canagcacc gtatcattta tggaggctct gtgactgggg 180  
caacctgcaa ggagctggcc agccagcctg atgtggatgg ctcccttggt ggtggtgctt 240  
ccctcaagcc cgaattcgtg gacatcatca atgccaaaca atgagcccca tccatcttcc 300  
ctacccttcc tgccaagcca gggactaanc agcccanaag cccagtaact gccctttccc 360  
tgcataatgct tctgatgggtg tcatctgctc ctccctgngg cctcatccaa actgtatctt 420  
cctttactgg ttatatcttc accctgtaat gggtgggacc aggccaatcc cttctccact 480  
tactataatg gttggaacta aacgtcacca aggtggcttc tccttggtg agagatggaa 540

ggcgtgnngg gattngctcc tgggttcct aagccctagt ganggcanaa gagaaaccat 600

<210> 870

<211> 497

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (70)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (136)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (178)

<223> n equals a,t,g, or c

<220>

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<222> (191)

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<222> (218)

<223> n equals a,t,g, or c

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<222> (236)

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gccctctgtn gacctatcct tccagccctc gaagcccctg agcaagtcca gctcctctcc 120  
cgagctgcag actctncagg acatcctcgg ggaccctggg gacaaggccg acgtgggncg 180  
gntgagccct naggttaagg cccggtcaca gtcagggncc ctggacgggg aaagtnctgc 240  
ctggtcgggtc tcgggcgaag acagtnggga ncagcccagag ggtcccttga cttccaggtn 300  
cccccggttc gcccaagtgg nctccggccc cgtagggttac aacatttncg antnngnccc 360  
atcacgcna ggcgaaganat tagagagggg cgctttaaga gcagagcaca gcttnattca 420  
gagaagttcc aggataaccc anttcgtttc ttgagtttac atcccttttt tggnggataa 480  
aaagcatctt tngccat 497

<210> 871  
<211> 568  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
<221> misc feature  
<222> (7)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (435)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (484)  
<223> n equals a,t,g, or c

<220>  
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<222> (510)  
<223> n equals a,t,g, or c

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<222> (533)  
<223> n equals a,t,g, or c

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tctagaacta gtggatcccc cgggctgcag gaattcggca cgagcgaaga tgaaattaac 120  
cgccgcacag ctgctgagaa tgagtgtg gtgctgaaga aggatgtgga tgctgcctac 180  
atgagcaagg tggagctgga ggccaagggtg gatgccctga atgatgagat caacttcctc 240  
aggaccctca atgagacgga gttgacagag ctgcagtccc agatctccga cacatctgtg 300  
gtgctgtcca tggacaacag tcgctccctg gacctggacg gcatcatcgc tgagggtcaag 360  
gcacagtatg aggagatggc caaatgcagc cgggctgagg ctgaagcctg gtaccagacc 420  
aagtttgaga ccctncaggc ccaggctggg aagcatgggg acgacctccg gaatacccg 480  
aatnagattt cagagatgaa ccgggccaatn cagaggctgc aggctgagat cgncaacatc 540  
aagaaccagc gtgccaagtt ggaggccg 568

<210> 872  
<211> 228  
<212> DNA  
<213> Homo sapiens

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<220>  
<221> misc feature  
<222> (72)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (221)  
<223> n equals a,t,g, or c

<400> 872  
aattcggc an agcttcaa ac tctactccca ctaatagctt tttaatgact tctagcaagc 60  
ctcgctaacc tngccttacc ccncnctatt aacctactgg gagaactctc tgtggctagt 120  
aaccangttc tncgtgatcaa atatcactct cctacttaca ggaactcaac atactagtgc 180  
acagcccnat actcccnntg acatattttac cacaacacaa ngggggct 228

<210> 873  
<211> 433  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
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<222> (318)  
<223> n equals a,t,g, or c

<220>  
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<222> (327)  
<223> n equals a,t,g, or c

<220>  
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<222> (348)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (363)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (368)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<400> 873  
ctggcctcct gtcttagcct tcctgggctg tgtctggagc ctgggacctt gcttgtgggg 60  
taaaagcaac agaacacttg cccttcccaa aatgaaggga gaggagatgg ggcttctctt 120  
cctctcccct gagtgggaaa ggagctctgg gggtgtgtcc ttcagcacag aggaggggtc 180  
actgaaagcg ttattgacca gctgctgtac cttctgcac tcactccacg ctactgcct 240  
ttttctcttc cttgcattgg ctctgtgcc tgtgccggct cctgcaaata caaagatgca 300  
aatgcacntc cttgcaanaa gagtgantgc aggcctttcc tgcgaatntg ggggatgggc 360  
canttaanca ggaaccagac ttgcagcagg gcaggcatga cagtttccca aacctcttta 420  
anangattca att 433

<210> 874  
<211> 84  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (58)  
<223> n equals a,t,g, or c

<220>  
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<222> (73)  
<223> n equals a,t,g, or c

<220>  
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<400> 874  
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tcggcccccac atntntcatc acca 84

<210> 875  
<211> 507  
<212> DNA  
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (28)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<221> misc feature

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<221> misc feature

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<221> misc feature

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<220>

<221> misc feature

<222> (415)

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<220>

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<222> (416)

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<222> (436)  
<223> n equals a,t,g, or c

<220>  
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<222> (439)  
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<220>  
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<220>  
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<222> (449)  
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<220>  
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<222> (454)  
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<222> (456)  
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<220>  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (474)  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<222> (498)  
<223> n equals a,t,g, or c

<220>  
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<222> (500)  
<223> n equals a,t,g, or c

<220>  
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<222> (503)  
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<400> 875

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agacgagnaa gaggaagaag gtggggagga agaggaggag gaagaagaag gtgatggtga 120  
ggaagaggat ggagatgaag atgaggaagc tgagtncagt tacgggccaa gcgggcagct 180  
gaagatgatg aggatgacga tgtcgatacc aagaagcaga agaccgacga ggatgactta 240  
gacagcaaaa aaggaaaatt taaacttaaa aaaaaaaagg ccnccgtgac ctttttacct 300  
tccatttccc ttttcagatt ttaaactgtg tcacctttcn gttagaaggg cccccccnnc 360  
cancnttggg aattcccntt tccnnnttt nncagggggt ttttcannnn cccnnncccn 420  
aaccttgggn tttttnaana gggngggna aaannnccca attttttngg nccntttttt 480  
tttttnaaan ntttttnnan ggntttt 507

<210> 876

<211> 190

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (24)

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<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<400> 876

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aaattgaaac ctggcgcaat agatatagta ccgcaaggaa agatgaaaaa ttataacca 120  
gcataatata gcaaggacta acccctatac cttctgcata atgaattaac tagaaataac 180  
ttttgcaagg 190

<210> 877

<211> 315

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (270)

<223> n equals a,t,g, or c

<400> 877

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ccgtgaggaa aaagaggcga ggcttttccg agatcgtctc agcgatggcg cttcgggtcgc 120  
ggttttgggg gttgttctcg gtttgcagga accctggtaa ttagtcttgc ccccttctc 180  
ccagctcact cgcctgggct tgcacagtac attggaacgt gcgggttcta ttttgtattc 240  
gacgtgccgg atcgaaatag agctcgcggn actgcgaaga ccacagtagg aagttaagga 300  
cggggtcagt gctga 315

<210> 878

<211> 295

<212> DNA  
<213> Homo sapiens

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<222> (127)

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<222> (137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (142)

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<222> (151)

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<222> (160)

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<220>

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<222> (165)

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<220>

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<222> (172)

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<220>

<221> misc feature

<222> (191)

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<220>  
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<220>  
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<222> (256)  
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<220>  
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<222> (268)  
<223> n equals a,t,g, or c

<220>  
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<222> (275)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (293)  
<223> n equals a,t,g, or c

<400> 878  
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cncctcccnng ccaaaaagat tnnctaatac tgcttgtagc agccagagaa agatccaaaa 120  
cactacncag cncctcngca cngaggaaat ntttccccc acatngactc cnggcctaca 180  
tcagccaaac nnaaccnngg tgggggttgg atttgatagc caatnagttc tgtgctggtt 240

gcaaagaatt gatatnttag atggnttnta atacntcagc agatttgtct ttncg 295

<210> 879

<211> 441

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (430)

<223> n equals a,t,g, or c

<400> 879

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aatctagacc ctctggaggc tgtagaatgt gaaaagatac agctgagctg acaagtttta 120  
gggcactatc ttctggaatg aaatcggcca agaaaatggt tcaagggcat ggggggtaga 180  
gaatgtttct tttaacctaaa aatgttaagc caactatgga agattgggggt cgtgggggca 240  
tgaaatacaa aattatgata atttatacag aactagggtt ctttatgttc tgcaagaagg 300  
tttttattag ctaatttggg gaggggggccc atgctgcagt attttttttc ctggggaaca 360  
tgccatttct gatggggaag ttattttgtt tacaagagtt ggtttaccac acaaccctga 420  
atgaatgtgn caatggccta a 441

<210> 880

<211> 112

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (97)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (105)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (106)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (109)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (111)

<223> n equals a,t,g, or c

<400> 880

ggcanagcgg cattgggagg ggcgctctga gattaaagag tttacctct gaaaaaaaaa 60  
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaaa aaaannaana na 112

<210> 881

<211> 162

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (9)

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<220>

<221> misc feature

<222> (23)

<223> n equals a,t,g, or c

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<222> (35)

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<221> misc feature

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<222> (117)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (136)

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<222> (142)

<223> n equals a,t,g, or c

<220>



<221> misc feature  
<222> (147)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<400> 881  
ggcagaccna acatagattt aantaaatac attancgggg gtaaaaatga aaatcntaac 60  
ccaagacatg aacatttttta gctgtaactt aactattaag gccttttccc acacgcntta 120  
atagtcccat tttctntttg gncattngtg gctntgcccc at 162

<210> 882  
<211> 117  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (91)  
<223> n equals a,t,g, or c

<220>  
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<222> (104)  
<223> n equals a,t,g, or c

<220>  
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<222> (109)  
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<220>  
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa naaaaaaaaa aaanaaaaana aanaaan 117

<210> 883  
<211> 452  
<212> DNA  
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<222> (440)

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<222> (448)

<223> n equals a,t,g, or c

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<222> (451)

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<400> 883

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caccggtncc ggnaattccc gggtcgaccc acgcgtccgc ccacgcgtcc gccacgcgt 120
ccgcccacgc gtccgctcgt gccatgatct gtatttaatg gtttttattt ctcgggtgca 180
tttgagagaa gccacgctgt cctctcgagc ccagatggaa agacgttttt gtgctgtggg 240
cagcancctc ccccgacgcg gggttagga agaaaactat cctgcggggt ttaatttatt 300
tcattccagtt tggtctccgg gtgtggcctc agccctcaga acaatccgat tcacgtaggg 360
aaatgtttta ggantttctgc agctatgnc aatgtggcat gggggggcgg gcagtcctgc 420
ccatgtgttc cctcatctgn tcagccancg nc 452
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<210> 884

<211> 340

<212> DNA

<213> Homo sapiens

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<222> (96)

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<222> (206)

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<222> (251)

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cgccatgact tcctacagct atcgccagtn gtcggncacg tcgtccttcg gaggcctggg 120  
cggcggctcc gtggcgtttt gggccggggg tcgcctttcg cgcgcccagc attcacgggg 180  
gctccggcgg ccgcggcgta tccgtntcct ccgcccgtt tgtgtcctcg tcctcctcgg 240  
gggcctacgg nggtggntaa ggnggggggtc ctgaaccgcn tncnaacggg gtgctggggcg 300  
ggcaacgagg aagcttaaac catgcagaac ctnaacgacc 340

<210> 885  
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<212> DNA  
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<220>  
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<220>

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<222> (49)

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<400> 885

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<210> 886

<211> 303

<212> DNA

<213> Homo sapiens

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<222> (100)

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<221> misc feature

<222> (118)

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<222> (120)

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<221> misc feature

<222> (148)

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<220>

<221> misc feature

<222> (193)

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caggtgcgtg tctgaagatc ttggttttgc tgtgcttgan acacagctga tgctttannn 120  
gctcaggttt actggcttta taacagtngg cataacgcct aaagcatccc ctctgcacgt 180  
gactgagcat gtncttaacc agaggagctg aacggagtgc agaaaatagt agtttttaggg 240  
cttagtgagc agaggaagca gcttctctgg tgctttatatt aatagaacat ttaagagtgc 300  
tca 303

<210> 887  
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<220>  
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<222> (586)

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<400> 887

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aggccctcgc gtcttgctga gcccggggag ttaggatgac gcgagcggtg agggagcccg 120
gaacgattcc ttcgcggaac aattgaggcg aagcctttgg gagtactttg tgggacggac 180
cctggcgggc cctgccanac ncacanggat ggcggcggaa gcggccgatt tggggctggg 240
ggccgcccgc cccgtggaac tnaagcggga gcgacgcacg gtgtgcgtgg agtaccggg 300
aattggtgcg tgatgtggct aaaatgctgc ccactctggg cggggaaaga aaggggtctc 360
cccgatctt acccagaanc ccccnagaa agcttgggan cttgtttctt cccggggccc 420
aaggaacca ttacttgncc ccccccgnTG tttgggcccc aaccgcctt ccanttacca 480
ancaancctt gcttgcttcc cctttccnn ggnaaaaaaa aaaacaaaag ggggggggaa 540
aaaaaagggg ttntcttggg ggccccttta aaggnccccc tnccnaagg ttcccccttt 600
tgaaaattgg gaaaaatcct ntgggggttc cttcttcccc ccccttttt 649
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<210> 888

<211> 72

<212> DNA

<213> Homo sapiens

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<222> (60)

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<220>

<221> misc feature

<222> (66)

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<220>

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<222> (67)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (68)



<223> n equals a,t,g, or c.

<400> 888

gccctatagt gagtcgtatt acaattcact ggccgctcgtt ttacaacgtc gtnatgtggn 60  
aaaccnnnta at 72

<210> 889

<211> 238

<212> DNA

<213> Homo sapiens

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<222> (22)

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<222> (27)

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taagnttgcc aacttcttnc cctgaacagc atttntcttg ttttgatacc cacctacact 120  
tatattagaa angnctgca aactathtag ngactccnct ttnaattnat ggncgtatgc 180  
ctnaagaatg ttttgaaata taaagcctat cccgtttgcc cagnttgtaa atttcagg 238

<210> 890

<211> 225

<212> DNA

<213> Homo sapiens

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<220>

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<222> (185)

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<220>

<221> misc feature

<222> (204)

<223> n equals a,t,g, or c

<220>

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<222> (217)

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<220>

<221> misc feature

<222> (223)

<223> n equals a,t,g, or c

<220>

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<400> 890

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cgtggagctg gcctcggcct cggcatcggg agaggctgga ctccctgtct ctctgtgctg 120  
aanggctgcg atggcgcccc ctctcactga cgcagcagct gaagcacacc atatccggtt 180  
caaantggct ccccatcct ctancttgct ccctggncag tgnng 225

<210> 891  
<211> 130  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (129)  
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aattcactgg ccgtcgtttt acaactncgn gatganggaa atntaaaata cttccgagct 120  
cgtatgttnt 130

<210> 892  
<211> 421  
<212> DNA  
<213> Homo sapiens

<400> 892  
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gaacatttga aagaactgca aattgtcctt gccagctctt gggatccttg gatacctggg 120  
gccattttaag aagctagggg aattaggcca caacaccccc tgggacatcc gaaagctaca 180  
ccacagatgc cagtgggtca tgccttcttc ccgcaacttt aggaaaattt atttatttat 240  
tgtttattag ttatgggggg agaggggaga tttaaaggac cagggacatg ggaaccaagc 300  
cataggggatc agagggggctt gtccttgaac actactgggg tatattcagg ctcacccacg 360  
cagctgctgg gttcttgccc taacggccct cccctgcaac atccgtcttg gaggagaggc 420  
t 421

<210> 893

<211> 307  
<212> DNA  
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<220>  
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<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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gtaaagtggg gatggggtaa aagtgggtta cgtcactgtt ggatcaacaa ataaagggtta 120  
cagttttgta agagaagtga tttgaataca tttttctgga actattcata atatgaagtt 180  
ttcctagaac cactggagtt tctagtttaa tagtttgcta tgcaatgnac cacctaaaac 240  
aatactttat attgttattt ttcnгааааа ctcaaaacac ctgtaattnt aaaccttaat 300  
atganan 307

<210> 894  
<211> 453  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
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<220>  
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<222> (403)  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (405)  
<223> n equals a,t,g, or c

<220>  
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<222> (453)  
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tatcccaaca aattanactc ccctctgtca tgtcaatatt ggaattgtag ctcacaggtg 120  
tttgcttana tcagtcattc agagaggaag aatgatagag aaaacttgtg ctctgacact 180  
actgattcctt acatagtggg acaatatctt tcttgataat gaattgtagt tattataaat 240  
cgggtgatcac gtgaccctaa aggcacccaa ataaatcttt agtaaaataa ttctgatgac 300  
acaatgaatg aattatcttt aaggcatttt cttggactag caatgtattc ttagagtggc 360  
gactgaatgt gcatacctca atgatccatg ttttactcat tcnnnggtcc ccaggccacc 420  
cagggcaacc aggcctcctt ggacctcctg ggn 453

<210> 895  
<211> 596  
<212> DNA  
<213> Homo sapiens

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<220>  
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<220>  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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caaggggaaag atgaaaaatt atagccaagc ataatatagc aaggactaac ccctataacct 120  
tctgcataat gaattaacta gaaataactt tgcaaggaga gccaaagcta agacccccga 180  
aaccagacga gctacctaa aacagctaaa agagcacacc cgtctatgta gcaaaaatagt 240  
gggaagattt ataggtagag gcgacaaacc taccgagcct ggngatagct ggtgccaaga 300

tagaatctta gntcaacttt aaatttgccc acagaaccct ctaaatcccc ttggaaattt 360  
aactggtagt ccaaagagga acagctcttt ggacactagg aaaaaacctt ggagagagag 420  
taaaaaattt aacaccata gtaggcctaa aagcagncac caattaagaa agcgntcaag 480  
ctcaacacccc actacctaaa aaatcccaaa catataactg aactnctnac acccaantgg 540  
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<212> DNA  
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aaggggtgtg gcggcctttg ctggggaaat ggcgacgac aagtggggcg gaggaggcct 180  
gcntccggaa agtcagtaga attcatcaca agagagctac aagagcctgg aagaagctga 240  
agacttgcta cctccatcc ttacttcacc ctgggacctg aggagacctc ttcaatcaga 300  
aatggaaaca gagagattct cctgggaaac cctgccccca taaacggccc t 351

<210> 897  
<211> 72  
<212> DNA  
<213> Homo sapiens

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<220>  
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<222> (58)  
<223> n equals a,t,g, or c

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<222> (59)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature



<222> (68)

<223> n equals a,t,g, or c

<400> 897

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aaaatttnat tt 72

<210> 898

<211> 383

<212> DNA

<213> Homo sapiens

<220>

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<222> (226)

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<222> (271)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (272)

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<222> (359)

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<221> misc feature

<222> (362)

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<222> (366)

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<400> 898

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cacgaggcaa ccgctccgga acgccangtg ggggcgaggg gtctcggagt ctcagagaca 120
ccaaggcccc tgcgacaagg tggctgcagc tagggccggg gcgtcaggac gacggnagcg 180
ggttcggggtc ggtgacacgc agacctgagg gagctgggcc cgcntnttcc gcccgcgccc 240
cagcccttgc agatcgagat ttgcgtccta nnatggggaa aaaagcagag gccagggcgc 300
cgattttatt tggagagaag caagcttctt tgnctcttt tgggattagg aaatttcana 360
cntggnaaaa atggtgtgtg gtt                                     383
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<210> 899

<211> 172

<212> DNA

<213> Homo sapiens

<220>

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<222> (97)

<223> n equals a,t,g, or c

<220>

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<222> (115)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (131)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (143)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
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<223> n equals a,t,g, or c

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ccaactgctc ttgcgccact ggtggctcct gcacgtncgc cggctcctgc aattncaaag 120  
agtgcaaag nacctcctgc aanaagagct gctgttcctg ntgccccgtg ga 172

<210> 900  
<211> 101  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (89)  
<223> n equals a,t,g, or c

<220>  
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<222> (99)  
<223> n equals a,t,g, or c

<400> 900  
gcagcagcac aggcgcgggt cccgggaang gccggctctn ctgcgccta gatntggaat 60  
ctccttcacg aaaccgactc ggctgtggnc accgcgcgnc g 101

<210> 901  
<211> 358  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>

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<222> (36)

<223> n equals a,t,g, or c

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

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<222> (349)

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<220>

<221> misc feature

<222> (358)

<223> n equals a,t,g, or c

<400> 901

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gctagctgcc cctttcccgt cctgggcacc ccgagntncc cccgacccc ggtcccaggt 120
atgctccac ctccacctgc cccactcacc acctctgcct agttccagac acctccacgc 180
ccacctggtc ctctcccatc gccacaaaa ggggggggcac gagggaacga gcttagctga 240
gctgggagga gcagggtag ggtgggcgac ccaggattcc ccctcccttc ccaattaaag 300
atgaggggat taaattgtct tggtttttaa ttantatta ntttttnnt ttttccan 358
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<210> 902

<211> 423

<212> DNA

<213> Homo sapiens

<220>

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<220>  
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<222> (386)  
<223> n equals a,t,g, or c

<220>  
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<222> (391)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (407)  
<223> n equals a,t,g, or c

<220>  
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<222> (420)  
<223> n equals a,t,g, or c

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aggatagcat gccacctgca actcactgca tgaccctttc tgtatatattca aaccaagct 120  
aagtgtctcc gttgtcttcc aaggaaacaa agagtcaaac tgtggacttg attttgtag 180  
cttttttcag aatttatctt tcattcagtt cccttcatt atcatttact tttacttaga 240  
agtatccaag gaagtctttt aactttaatt tccatttctt cctaaaggga gaggagtga 300  
tatgtacagt gttttggaga tgtatacata tattccagaa ctngggggaa tcttattaag 360  
ttatggatat accaccgtaa cggtcnaaaa ngtttaaaga acccatncgg taaggtaatn 420  
ggg 423

<210> 903  
<211> 362  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (177)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (273)

<223> n equals a,t,g, or c

<220>

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<222> (305)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (309)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (351)

<223> n equals a,t,g, or c

<400> 903

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agtnagggct gagtgggtat caccttctcg gtgagaaaat caatttcctg agagtnttgt 120
aaactaggac ttagagtact aatcatgggtg tttttcagaa attatatata tatttttnaag 180
tcagggtctc accgtgtcgc ccaggctgga ggcagagggt gtggctcgtg ccgaattcga 240
tatcaagctt atcgataccg tcgacctcga gnggggggcc cggtacccaa ttcgccctat 300
tagtnagtn gattacaat tcaactgggc gtcgttttta aaacgggggt nactggggaa 360
ac 362
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<210> 904

<211> 309

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (107)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (150)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (162)

<223> n equals a,t,g, or c

<220>  
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<222> (170)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (171)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (179)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (267)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (294)  
<223> n equals a,t,g, or c

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ggcgggtccgg ctctcgatgg tggcgtgacg ggggcggggg tggcgngcg ttctcctcgg 120  
ttgggaagga accagcccgc gaaccaggn cgggaagggg gntcggcctn ngggggaang 180  
gactgacatg tctctcgaag accccttttt tgtagtccga ggcgaggtgc agaaagcggg 240  
gaacacgggn ccgcgggctg taccagngct ggtgcganct cctgcaagaa ancncggcgt 300  
tcggaacgc 309

<210> 905  
<211> 388

<212> DNA  
<213> Homo sapiens

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<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<222> (129)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (304)



<223> n equals a,t,g, or c

<220>

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<222> (318)

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<220>

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<222> (364)

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<222> (375)

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<220>

<221> misc feature

<222> (381)

<223> n equals a,t,g, or c

<400> 905

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nnctgnaccc aggagcagct gcaccacttg naaagtcgcc tcatctccta agcactcctt 120
tcccctgnng tccccttcga accctgaagc cctctggtgc gcgctctgcc cgatgcacag 180
ccacctaagc nagcccccag gttagaaacg tgggttaaag ctcttgctg ccccggttaa 240
gcttcactcc naccctttta agcgtcctgc cccttcacct tgaacccggg ttccccatt 300
ccanttcctg ggctttgnca tgatttggtt ggttcaatgg ttccttcttt cctgaggggg 360
cttnagggtt ttggnggggg ntaagggtt 388
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<210> 906

<211> 349

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (36)

<223> n equals a,t,g, or c

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<222> (50)  
<223> n equals a,t,g, or c

<220>  
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<222> (91)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (170)  
<223> n equals a,t,g, or c

<220>  
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<222> (219)  
<223> n equals a,t,g, or c

<220>  
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<222> (316)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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aggggtgtgt tcaacttatg tacgtactgt ntcattgcagg tttatagcac ggtagagtag 120  
aaggcggtct ctgattttta gggtattttt agaattcatt cctgaatgan ggggttcagac 180  
acccagtctc ctcggaacag ggggtgagggg tcgactganc tttgttgaga agcctccagt 240  
taaggcttcg ggcgggtctc catgttgtat tgtgtgttta ctgagcttcc cactgggttag 300  
aagatgacac atttgnccat cgtcctgtgt atctganatt cccagggga 349

<210> 907  
<211> 469  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (41)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (53)

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<220>

<221> misc feature

<222> (102)

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<220>

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<222> (138)

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<222> (141)

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<220>

<221> misc feature

<222> (161)

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<222> (182)

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<220>

<221> misc feature

<222> (189)

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<220>

<221> misc feature

<222> (201)

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<220>

<221> misc feature

<222> (203)

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<220>  
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<222> (216)  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (292)  
<223> n equals a,t,g, or c

<220>  
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<222> (302)  
<223> n equals a,t,g, or c

<220>  
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<222> (306)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (331)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (333)  
<223> n equals a,t,g, or c

<220>  
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<222> (351)  
<223> n equals a,t,g, or c

<220>  
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<222> (395)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (445)  
<223> n equals a,t,g, or c

<220>  
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<222> (460)  
<223> n equals a,t,g, or c

<220>  
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<222> (462)  
<223> n equals a,t,g, or c

<220>  
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<222> (465)  
<223> n equals a,t,g, or c

<400> 907  
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cgatagaaat tgaaacctgg cgcaatagat atagtaccgc angggaaaga tgaaaaatta 120  
taaccaagca taatatanca nggactaacc cctatacctt ntgcataatg aattaactag 180  
anataactnt gcaaggagag nchnaagctaa gaccncgaa accagacgag ctacctaaga 240  
acagntaaaa gagcacaccc gtatatgtag caaaatagng ggaagattta tnggtagagg 300  
cnacanacct accgagcctg gngatatgct ngntgtccaa gataagaatc ntaggttaac 360  
ttttaaattt ggccacagaa cccttttaaa tcccnttgga aattttaactg gtaagcccaa 420  
agaggaacaa gtttttttga cactngggaa aaaaccttgn anaanagag 469

<210> 908  
<211> 95  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (79)  
<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (80)  
<223> n equals a,t,g, or c

<220>  
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<222> (81)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (93)  
<223> n equals a,t,g, or c

<400> 908  
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aaaaaaaaaa aaaaaaannn nggggggggc ccngt 95

<210> 909  
<211> 373  
<212> DNA  
<213> Homo sapiens

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (271)  
<223> n equals a,t,g, or c

<220>  
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<222> (330)  
<223> n equals a,t,g, or c

<220>  
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<220>

<221> misc feature

<222> (337)

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<220>

<221> misc feature

<222> (367)

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<220>

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<222> (372)

<223> n equals a,t,g, or c

<400> 909

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ggtggccagc tgttactggg tttaaaacag gactgtttct tgtaagatg ggggaactgc 60
tttcttgcca aaagtgccan agatcaactt ggaaaacaaa atcctcacag agggagagta 120
aagaacactt gattagtctc attagcacct gtagctactt ttctaaagtt aattcctgaa 180
ggcccttgaa agcttcacta tgagattgaa tttgcaccat tncncaatg gtctttgcaa 240
tgagggatgg gggatagtgt gatggtcctt nccaaccatc cctggaagaa gaagccaaaa 300
aactttttcc cgaaaggagt tctttcacen aagnagntcc catctgggca ggaaattacc 360
tccgggnaac ana 373
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<210> 910

<211> 721

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (516)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (624)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (627)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (691)

<223> n equals a,t,g, or c

<400> 910

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ggcaatacat ctaccactc cattattttt taaaacttca tttaatagtt taaacaagat 120
tggttttggt ttcaattttt attcactctt catagaatca caattacctt tatatatcat 180
atgttattgg aagagattcc tcagtaatct ccaatctctc atagtgcctc acaggggttg 240
tcaatggctt ttggaactgg aaggacctta gaacttatct gttatgctcc tgatagccaa 300
tagcagatag aagcttgcaa tcaagagggt aggacatgtg ttcttcaatg gatatcaaag 360
gaagagggtg caaaccaaag ccatttggca agccctgtag cctgggcat ttaagacagg 420
ggcggctctc gccaaattgc acccatttaa ctatcccaa gagccacaag tgcctacaac 480
ccaggcccta agttgatgaa gaaaaagtca aggaangagg tgatcaattg gaaatattcc 540
catcaaatgg gtaaacttat ttagaaaatg ggcatattag aaaaagcctt ccaagatgat 600
tttggataat aaaagtggat ttgnggnaat gggaataact ctggttaagc cctacattat 660
cccttacatt tggtttaggg acctactgac ntaaattaag gaaacatggt aaagtacctt 720
g 721
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<210> 911

<211> 564

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (338)

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<220>

<221> misc feature

<222> (342)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (365)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (366)

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<220>

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<222> (370)

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<220>

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<222> (376)

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<220>



<221> misc feature  
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<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (475)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
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<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (493)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (494)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (505)  
<223> n equals a,t,g, or c

<220>  
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<222> (525)  
<223> n equals a,t,g, or c

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tgggacccag tagtttccca tcccaaacct gctttccgag aagggttca aacccaaaat 120  
gtgaatcccg cctcccctct cagccagaac tgtggactcg tcccggggag gggcggtggg 180  
tggggcgggg ctggcgggaa atttcggttt tggcgcgctc cctgcggcga cgctccatcg 240  
tgcgctctcc tcttcccccg gtggtctcct cgctcgccct ctggctctgc atgccctgct 300  
ctgaagagac acccgccatt tcacccagta agcgggcncg gntgcggaag tgggcggcat 360  
gcagnnccgn tttgcncggt ttctgagcaa gccaaaggccc caacgggggt ngggcgcgcg 420  
gggggttaaga ctgtaaaatg gctangatta aacataccac tatggagaaa tttntgaaa 480  
nggaattcaa aanngtcctt ttgngtaat gaaaatggtc aagtnagggt ggtgaaaaat 540  
ttttgattag actgggtaaa atga 564

<210> 912  
<211> 408  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (360)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (380)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (383)  
<223> n equals a,t,g, or c

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atacgctatt gtcctgcccg ttagagcagc cagcgggtac agaatggatt ttggaagagg 120  
gagtcaccac tggacctcca aggaagccac gtgcagacat ctacaacctt cgatctcctg 180  
acgagtttat tgttggccaa aaccaggctt tgattgaacc aggatgaatg cgggtgttgg 240  
aagtagaata tataatataca tataaaattg gttgggagcc acgtgtacca gtgtgtgttg 300  
atcttggtt gattcagctt gccttgtaac agaactggcg atggaatatg agaggagccn 360  
ctggaaagaa aaggacagan ccnntgcttt catgnaagtg agatctgg 408

<210> 913  
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<223> n equals a,t,g, or c

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<220>  
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<223> n equals a,t,g, or c

<220>  
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<222> (346)  
<223> n equals a,t,g, or c

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gccatcctgg cttcgggggc gccggcctcc agggcccggg aaggagaact cctagggcta 120  
ctaaatcctc gctggaggng ntggcttctt atgcgggagg acgtggcgga gggcctgact 180  
ttgggagccg ggggttgact ggattggtga ggcccggtg gctacttctg tggaagcagt 240  
gctgtnagtt actggaagat aaaagggaaa gcaagccctt ggtgggggaa atatggctgc 300  
gatgatggca ttcttaggac accttggnnta ntantgaaac aantanctct gagca 355

<210> 914  
<211> 377  
<212> DNA  
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<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<222> (311)  
<223> n equals a,t,g, or c

<220>  
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<222> (314)  
<223> n equals a,t,g, or c

<220>  
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<222> (328)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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aacgccttcg cttcgggtcc ggagctcagc agcctcatca cgccgctcgc catccagacc 120  
cacaactttg ccgccgtggc cgcgcgcgcg tactaccgca gtcagcagca gcagcagcag 180  
cagggcctgg cgccccccgc gcagcgccgg cgccgcccag cgcgaccctc cccgcccggg 240  
ccgcccgcacc tccctcgccg cccttcagct tccanctgcc gcgcgggcct tgtccgantic 300  
gcccgtgttt ngangcggcc cccaagcncc ccgggattcg ctgttcggaa cgggaaagta 360  
acttaaancg ggttcct 377

<210> 915  
<211> 509  
<212> DNA  
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<220>  
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<222> (133)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (166)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (172)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (226)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (407)

<223> n equals a,t,g, or c

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<222> (431)

<223> n equals a,t,g, or c

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<222> (482)

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<222> (493)

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<222> (501)

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cctctccctt ccaaattctt ggtgccacca ttgagaaact ccaggattgt cctgcagatc 120  
gacaacgccc gtntggctgc agatgaactt ccgaaccaag taagtntctc tntcctgggg 180  
gctgcagaag ccaggactgg ggtaggggtt ggggggttta ggaatntgcc ctacacctagc 240  
ctagatggcc tgaagctaaa cccccctatg gactcctgaa ctctggggag gtagggaagt 300  
cttcagagat gctgaggaag ctctgcctgg ctgcaactat tttccttgaa aggtttgaga 360  
cggaacaggt ttgcgcatga gcgtggtagg ccgacatcaa cggctgngca ggtgctggat 420

gagctgacct ngccagaccg acctggagat gcaatcgaag gcctaaggag agttggctac 480  
tnaagaggac cttagagtgg nttagattg 509

<210> 916  
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<212> DNA  
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<223> n equals a,t,g, or c

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<220>  
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<222> (102)  
<223> n equals a,t,g, or c

<220>  
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<222> (115)  
<223> n equals a,t,g, or c

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tnacaacgta acacaangct tacttatagc acccaacaaa antgtctctg tgganccact 120  
tccagtgaa ctaca 135

<210> 917  
<211> 230  
<212> DNA

<213> Homo sapiens

<220>

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<222> (54)

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<220>

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gcctccantc ctgcctctan catgtccatc angngaccc agaagtccta caaggngtcc 120  
anctctgggc cccggggctt cagcagccgn tcctacacga gtgggnccgg ttcccgcac 180  
agctcctcga gnttctcccg agtgggnagc agcaactttc gcggtgggct 230

<210> 918  
<211> 529  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
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<223> n equals a,t,g, or c

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<222> (334)  
<223> n equals a,t,g, or c

<220>  
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<222> (337)  
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<220>  
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<222> (407)  
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<220>  
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<222> (410)  
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<220>  
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<222> (429)  
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<222> (519)  
<223> n equals a,t,g, or c

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tctcctgctc ctagaggttg agaacaaaaa catgcacctg gagtttcccc ggagccctct 120  
gcgtgggttg gcttcgggtg aatttcgggg ctcttggtcg ccagcgcgct tgcctggtag 180  
caacagaaac cagtctgct cgcctccgtg gacatttcac taccatccag aagtgtctcc 240

caactgaaggc atccgtggtt gtttttaagc cacaaaaaag ccacanccaa gatcacntga 300  
caaccaccct gacaagtgtt ccatgatgtt gggncngag ggaggtgaag gtttttgttg 360  
tcaagttcct tggncctgcc tgncccgtt tttttgagga cgtgcanaan ttcccttttg 420  
actgaangnt tcaagttggg gccccaaggt tccatttaat nacattgggg gggcaagcaa 480  
nattggtgng gtttttttga attggttcaa aggtgtttna aaatgnccc 529

<210> 919

<211> 238

<212> DNA

<213> Homo sapiens

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<222> (26)

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<220>

<221> misc feature

<222> (53)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (88)

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<221> misc feature

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<221> misc feature

<222> (134)

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<222> (156)

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<222> (178)

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<220>

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<222> (179)

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<221> misc feature

<222> (215)

<223> n equals a,t,g, or c

<220>

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<222> (230)

<223> n equals a,t,g, or c

<400> 919

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agagtagtcc tgggaagatg ggctctctntg aagnagccac ggggacagca tcntgcagat 120  
ggtcctggcc cttntccac cgacctgtct acaagnactg tgctcgtgg accctccnnt 180  
ctggcacagg aagctggacc cttaaagtccc ttgtncacc ggccaggaan tggtagcc 238

<210> 920

<211> 442

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (262)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (268)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (303)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (382)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (385)

<223> n equals a,t,g, or c

<400> 920

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ctcgagtgat ttgagaaaac ttacaaaagg tggaaaatct acgtgggcct ccgaaagtca 120
gatttgacaa gatcaaagct gcaggaaaat ggacagttag gttcagagag atggaaggat 180
cttggatttg attgatgatg cttggcgaga agacaagctg ccttatgagg atgtcgcaat 240
accactgaat gagcttcctg ancctganca agacaatggg ggcaccacag atctgtcaaa 300
gancaagaaa tgaagtggac agacttagcc ttacagtacc tccatgagaa tgttcccccc 360
attggaaact gacgtttggc tncntcttg tggatggatt ttctcaaagt acacagataa 420
agcatgggtg tttcagtcgt cc 442
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<210> 921

<211> 444

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (302)

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<220>

<221> misc feature

<222> (378)

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<222> (430)

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<222> (440)

<223> n equals a,t,g, or c

<400> 921

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gtgttagcaa tcagcgagac tccgtgggca taggaacctc cgagccaggt gcgggatgta 120
atctcgtggt gcaccgtttt ttaagccagt ccgaaaagcg caatattcgg gtgggagtga 180
cccaattttc caggtgcgtc cgtcacccct ttctttgact cggaaaggga actccctgac 240
cccttgcgct tccaagtga ggcaatgctc tccctgcttc ggctcgaca cggtgcgcg 300
anccactgac ctgtgcccac tgtctggcac tccctagtgt agatgaaccg gtacctcaga 360
tggaatgca gaaatcancc gtcttctgcg tcaactcatgc tggagctgta gaccggagct 420
gttcctaata cggcatttgn tcct 444
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<210> 922

<211> 394  
<212> DNA  
<213> Homo sapiens

<220>  
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<220>  
<221> misc feature  
<222> (286)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<220>  
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<222> (372)  
<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<220>  
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<223> n equals a,t,g, or c

<400> 922  
gaaccgggta gcttgggccag gttgtgagga accgcagcgc gccgcaggac cgggccgctg 60  
agcctgcagc cgccccgcgc cgtgacctgc gaccctagac cccgactccc tttggctcag 120  
cccgcgcgcc ccaggccccg cccggggcggc gcgacgggag gatgagcggc gggcggcgga 180  
aggaggagcc gcctcagccg cagctggcca acggggccct caaagtctcc gtctggagta 240  
agggtgctgcg gacgacgcgg cctggganga taagataatt ttaagngtga ctantggttc 300  
cgacaatatt ctgtgtcntg gtgtcaattt gggattttcc ataacaggtt cttggaatac 360

agatttgctn anantcagat ctgtactnaa ttca

394

<210> 923

<211> 352

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (331)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (341)

<223> n equals a,t,g, or c

<220>

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<222> (347)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (351)

<223> n equals a,t,g, or c

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tactagacca atgggactta aaccacacaa cacttagtta acagctaagc accctaataca 120  
actggcttca atctacttct cccgccgccg ggaaaaaagg cgggagaagc cccggcaggt 180  
ttgaagctgc ttcttcgaat ttgcaattca atatgaaaat cacctcggag ctggtaaaaaa 240  
gaggcctaac ccctgtcttt agatttacag tccaatgctt cactcagcca ttttacctca 300  
cccccaaaaa aaaaaaaaaa aaaaaaaacc ncggggggggg ncccggnncc na 352

<210> 924

<211> 436

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (368)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (433)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (435)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (436)  
<223> n equals a,t,g, or c

<400> 924  
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gatagaaatt gaaacctggc gcaatagata tagtaccgca agggaaagat gaaaaattat 120  
aaccaagcat aatatagcaa ggactaacco ctataccttc tgcataatga attaactaga 180  
aataactttg caaggagagc caaagctaag acccccgaaa ccagacgagc tacctaagaa 240  
cagctaaaag agcacacccg tctatgtagc aaaatagtgg gaagatttat aggtagaggc 300  
gacaaacctt ccgagcctgg tgatagctgg ttgtccaaga tagaatctta gttcaacttt 360  
aaatttgncc acagaacctt ctaaatcccc ttgtaaattt aactgggttag tccaaagagg 420  
gacagctctt tgnngnn 436

<210> 925  
<211> 439  
<212> DNA  
<213> Homo sapiens

<400> 925  
cccaaaccct ctccacctta ctaccagaca accttagcca aaccatttac ccaaataaag 60  
tataggcgat agaaattgaa acctggcgca atagatatag taccgcaagg gaaagatgaa 120  
aaattataac caagcataat atagcaagga ctaaccctta taccttctgc ataataaatt 180  
aactagaaat aactttgcaa ggagagccaa agctaagacc cccgaaacca gacgagctac 240  
ctaagaacag ctaaaagagc acaccgtct atgtagcaaa atagtgggaa gatttatagg 300  
tagaggcgac aaacctaccg agcctggtga tagctggttg tccaagatag aatctttagt 360  
tcaactttaa atttgccac agaacctcta aatcccttg taaatttaac tggtaagtcc 420  
caaggaggac agtctttgg 439

<210> 926  
<211> 183  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (179)  
<223> n equals a,t,g, or c

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cgcataagcc tgcgtcagat taaaacactg aactgacaat taacagccca atatctacaa 120  
tcaaccaaca agtcattatt accctcactg tcaacccaac aaaaaaaaaa aaaaaaana 180  
aaa 183

<210> 927  
<211> 432  
<212> DNA  
<213> Homo sapiens

<400> 927  
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gctgctcgat tggctggtgg acagaaggca ctgcagcctg aaatggcaga gtctggtgct 120  
gacgatccgc gagaagatca atgtgccat ccaggacatg ccagagagcg aagagatcgc 180  
ccagctgctg tctgggtcct acattcacta ctttctactgc ctaagaatcc tggaccttct 240  
caaaggcaca gaggcctcca cgaagaatat ttttgccga tactcttcac agcggatgaa 300  
ggattggcag gagattatag ctctgtatga gaaggacaac acctacttag tggaactctc 360  
tagcctcctg gttcgggaatg tcaactatga gatccctca ctgaagaagc agattgcaa 420  
gtgccagcag ct 432

<210> 928  
<211> 439  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (86)  
<223> n equals a,t,g, or c

<220>  
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<222> (413)  
<223> n equals a,t,g, or c

<220>  
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<222> (415)  
<223> n equals a,t,g, or c

<220>  
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<222> (439)  
<223> n equals a,t,g, or c

<400> 928  
agacaacctt agccaaacca tttacccaaa taaagtatag gcgatagaaa ttgaaacctg 60  
gcgcaataga tatagtaccg caaggnaaag atgaaaaatt ataaccaagc ataatatagc 120  
aaggactaac ccctatacct tctgcataat gaattaacta gaaataactt tgcaaggaga 180  
gccaaagcta agacccccga aaccagacga gctacctaa aacagctaaa agagcacacc 240  
cgtctatgta gcaaaatagt gggaagattt ataggtagag gcgacaaacc taccgagcct 300  
ggtgatagct gggtgtccaa gatagtatct tagttcaact ttaaatttgc ccacagaacc 360



ctctaaatcc ccttgtaaatt ttaactgtta gtcccaagag ggacagctct ttngnacta 420  
gggaaaaacc ttgtagggn 439

<210> 929

<211> 433

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (388)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (417)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (432)

<223> n equals a,t,g, or c

<400> 929

ctgcattcag cattttaagg atttatattc atagtcaagc gccgcttaag gaggattcat 60  
tctgtgaaat gagttgttag gcagtttcat tgtgcgagca tcataggggtg aacttacaca 120  
aacctagggtt gcagagccta ctgcacacct cggctgtgtg gtctaacctg ttgtccttg 180  
actgcaaacc tgtacagcct gttactgtcc tgaataactgc aggcagttag aacagagtgg 240  
tacatagttg tgtttctaaa catatcgga cctagaaaag gtacagtaga aatacggtat 300  
tacaatctta tgggaccact gtctgtgtgc ggtctgttgt tgactgaaat gttatgcagt 360  
acatgggctg ccatgagatt accttganaa ttttgcccta tatgaaacct agatatnacc 420  
ttaaatatgg gna 433

<210> 930

<211> 390

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (332)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (354)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (375)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (388)

<223> n equals a,t,g, or c

<400> 930

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gtccccact cggagctcct ccagcccgt tcccgtatgt gcagcatgtc ccggcggtca 60
cagagcttgg ctgcctcctc tgtcccagga gagagatgct tagagctgtc ctcccagga 120
gtcatgtcag cctctagggt gtgcatggga gctgagggga cactcctgct gcctccctgg 180
agtggtaatt aaccgggact ttcctcctcc cagaaccaac atcccgggta acggttgggc 240
tgaaggacag gtgacgtgtc cctaactccc ccccttcctt gcccgaggtt ccggcatcca 300
acgtcttggc ttcctggtct tcaagcagga cnaccgattg gcttttctga agangcaagn 360
ccttaacctg gtaanttaa acaaccanaa 390
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<210> 931

<211> 320

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (164)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (205)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (232)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (293)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (296)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (311)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (316)

<223> n equals a,t,g, or c

<400> 931

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cggtacgcgt gggcggacgc gtgggcggac gcgtggggcc atctcacctc ttcattctct 60
tgttacattt gaagcagttg atataatggg ttataacttt aaaagataga catgggtgcc 120
tgaagtggg gagttgggtg aattatccca ttctagttac agangagctt tccttaaag 180
ccctttaact tctaggtttt gtcnagaag ttcattttct gagttaaag tnattttcat 240
atatgtttgg gggaaaatta actcatcctc aaaaagaatc cttattaggt tanttnaact 300
ccttaaaaact naaccnaatc                                     320
```

<210> 932

<211> 265

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (256)

<223> n equals a,t,g, or c

<400> 932

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aaaaaagata tattaacagt tttagaagtc agtagaataa aatcttaaag cactcataat 60
atggcatcct tcaatttctg tataaaagca gatcttttta aaaagatact tctgtaactt 120
aagaaacctg gcattttaat catattttgt ctttaggtaa aagctttggt ttgtgttcgt 180
gttttgtttg ttacacttgt ttccctccca gccccaaacc ttttgttctc tccgtgaaac 240
ttacctttcc ctttttcttt ctctt                                     265
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<210> 933

<211> 475

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature  
<222> (12)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (37)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (49)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (102)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (463)  
<223> n equals a,t,g, or c

<400> 933  
gtggnggcgc tnc tagaact atggatcccc cggtgncag gattacggnc acgagcaagg 60  
gcagtgttac acttatgagg aactgtctct agccatccag gnaagtacta ctgggtctga 120  
gggatggaaa gttcttcctg ctatgaatga gagtggactc tccccctcac ccccaactga 180  
aaccacaaac aaccagaatc ttctggaatt ctgacttaga gtcgttggtta tagaagacct 240  
tgttgctatg gaacatgaaa ctgtgtgtca gatggagaga tccccctaac ctaagagcct 300  
taaataagccc tgaaagtaca ctgggacggt ttgcatgga attaaaattg gaagtgatat 360  
ttttaggtgc tcttgaaagc tttctgggga ctcaaaatta tcaaaagtca gggacagtcc 420  
ggaggaagag cgtctgcaaa actgggttcc tagaagtata gancggactt agctg 475

<210> 934  
<211> 322  
<212> DNA  
<213> Homo sapiens

<400> 934  
ataaacaaca tctccagaca gatctacctg accgacaacc ctgaggcagt cgcgatcaag 60  
ttgaatcaga ccgctctgca agcagtgact ccattacaa gttttggaaa aaaacaagaa 120  
agctcatgcc ccagccagaa cctgaaaaat tcagagatgg aaaatgaaaa tgacaagatt 180  
gttcccaaag caacagccag tctacctgaa gcagaggagc tgatcgcgcc tggaacgccg 240  
attcaattcg atattgtgct tctgctaca gaattccttg atcagaacag agggagcagg 300  
cgtaccaacc cttttggtga aa 322

<210> 935  
<211> 378  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (121)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (122)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (124)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (301)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (326)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (327)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (356)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (365)  
<223> n equals a,t,g, or c

<400> 935  
ggcagaggag aaactgtgtg tgaggggaag aggcctgttt cgctgtcggg tctctagttc 60  
ttgcacgctc tttaagagtc tgcactggag gaactctgcc attaccagct cccttcttgc 120  
nnangccggt gggaaacata catttattca tgccagtctg ttgcatgcag gctttttggc 180  
ttcctacctt gcaacaaaat gaattgcacc aactccttag tgccgattcc gcccacagag 240  
agtcctggag ccacagtctt ttttgctttg cattgtagga gagggactaa gtgctagaga 300  
ntatgtcgtt ttccctgagc taaccnngag cgttcgtgga actgggatca aactgntttc 360  
agggnaaaag gaaaaaaa 378

<210> 936

<211> 450  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc feature  
<222> (172)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (202)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (230)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (295)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (304)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (307)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (384)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (396)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature  
<222> (401)  
<223> n equals a,t,g, or c

<220>  
<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (438)

<223> n equals a,t,g, or c

<400> 936

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ggtggtaagt ggcttcgtgg tctttatagc tgttactctt ttgtactttg tctttttctt 60
ttattttctt ttgagcgatt gtgcgaacat agcatagcac gcactatgcc ttctgtgttg 120
tagctgcctg gccagggcga ctggcggata aggtcttgtg cgtggcctcg angcttaaaa 180
gtaacagtgg ggctttgtga angacaaaat ggcgatggcg ggccgtgtan gtcccccttc 240
ctatgatgaa agaccttttc acagacctgt tactgaactc cgtgaagata aatantctga 300
aganatnggc cctgcaagcc tcttgcttac ccgtcctgtt ccaaaaaaat acgttttcca 360
aaatgccctg aatttgaact aatntcttat tgggcncctg ntctgccaga tttaccnca 420
ctttggaaca aaaaaaancc ttttgtttgc 450
```

<210> 937

<211> 209

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (24)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (55)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (62)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (175)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (187)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (191)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (198)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (200)

<223> n equals a,t,g, or c

<400> 937

agtccttaaga ccaannaagc acgnaagcgc cgtgaagagc gcctccaggc caagnaggag 60  
gngatcatca agactttatc caaggaggaa gagaccaaga aataaaacct cccactttgt 120  
ctgtacatac tggcctctgt gattacatag atcagccatt gaaaataaaa caagncttaa 180  
tctgcanata ngacaagnan aaaatttcg 209

<210> 938

<211> 437

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (366)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (390)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (408)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (425)



<223> n equals a,t,g, or c.

<220>

<221> misc feature

<222> (428)

<223> n equals a,t,g, or c

<400> 938

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cagaactgat agaacaaaca ctactctttt gaatttgatg gttcgtgtcc tttaaagtgt 60
ttgaggacct atgcagagcc tgtaacactt gggtagtacc tgctaggaca atttcttggc 120
aattgtctta ctactaggga tcagtaagat ttagattctg agcccataat ggcaacagcc 180
ccctcaccta tgggaagctg acttccctca gtcgggact tctcatgggg gctgaacatg 240
gttcctgccca ttctgttacc cactctccca ggtgagccct ggattggctc ccagaaggcc 300
ttgtaaaaat ccatagccat cctgcaggca gtgggagcaa caggggcttt catagcttca 360
tttccngtct tgcagacaag gaccctgggn aacatgtgct gctaatanga taattactcc 420
gttgnccnaa ttaccag 437
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<210> 939

<211> 450

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (109)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (110)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (362)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (395)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (423)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (440)

<223> n equals a,t,g, or c

<400> 939

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cngacgcgtg ggtcgaccna cgcgtccgcc cacgcgtccg cccacgcgtc cgacgacaga 60
agggtacggc tgcgagaaga cgcagaaggg tacggctgcg agaagacgnn agaaggggct 120
tttcacattc gggaaacgtc gggattaggt gaaagtacgt agttgtcttt cgtaagtcaa 180
aatgataatt gggccgaaac ttactgcctt acctaaaagg cagcgcagtc aggatattgg 240
taggtcgggg gcggtcttgg aaacccttaa gtttacaagc atgcgcggac ttgagtgtc 300
attaggtcgc cgggcgtcca cgtgcagccc tggaccctga accccggcgt gcgttggccg 360
tnggcctcgg ggaagagttc cgtgcactcg gggantccgg tgaagctgtt cagccgtctg 420
tgnccatgtg ccactctgan tctactctgt                                     450
```

<210> 940

<211> 233

<212> DNA

<213> Homo sapiens

<400> 940

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ggagcgcctg tgggagccct ggaggggaact ttcccagtc ccgaggcgga tcgggtgttg 60
catccatgga gcgagctgag agctcgagta cagaacctgc taaggccatc aaacctattg 120
atcagaagtc agtccatcag atttgctctg ggcaggtggg actgagtcta agcactgcgg 180
taaaggagtt agtagaaaac agtctggatg ctggtgccac taatattgat cta          233
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<210> 941

<211> 238

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (202)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (217)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (228)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 941

His Glu Cys Ala Cys Leu Pro Gly Tyr Ala Gly Asp Gly His Gln Cys  
 1 5 10 15

Thr Asp Val Asp Glu Cys Ser Glu Asn Arg Cys His Pro Ala Ala Thr  
 20 25 30

Cys Tyr Asn Thr Pro Gly Ser Phe Ser Cys Arg Cys Gln Pro Gly Tyr  
 35 40 45

Tyr Gly Asp Gly Phe Gln Cys Ile Pro Asp Ser Thr Ser Ser Leu Thr  
 50 55 60

Pro Cys Glu Gln Gln Gln Arg His Ala Gln Ala Gln Tyr Ala Tyr Pro  
 65 70 75 80

Gly Ala Arg Phe His Ile Pro Gln Cys Asp Glu Gln Gly Asn Phe Leu  
 85 90 95

Pro Leu Gln Cys His Gly Ser Thr Gly Phe Cys Trp Cys Val Asp Pro  
 100 105 110

Asp Gly His Glu Val Pro Gly Thr Gln Thr Pro Pro Gly Ser Thr Pro  
 115 120 125

Pro His Cys Gly Pro Ser Pro Glu Pro Thr Gln Arg Pro Pro Thr Ile  
 130 135 140

Cys Glu Arg Trp Arg Glu Asn Leu Leu Glu His Tyr Gly Gly Thr Pro  
 145 150 155 160

Arg Asp Asp Gln Tyr Val Pro Gln Cys Asp Asp Leu Gly His Phe Ile  
 165 170 175

Pro Leu Gln Cys His Gly Lys Ser Asp Phe Cys Trp Cys Val Asp Lys  
 180 185 190

Asp Gly Arg Glu Val Gln Gly Thr Gly Xaa Pro Ala Arg His His Pro  
 195 200 205

Cys Val Tyr Thr His Arg Arg Ser Xaa His Gly Pro Ala His Ala Pro  
 210 215 220

Ala Arg Cys Xaa Pro Ser Ile Cys Gly Gln Leu Pro Gly Ala  
 225 230 235

&lt;210&gt; 942

&lt;211&gt; 341

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 942

Arg Thr Asn Leu Lys Glu Ala Ser Asp Ile Lys Leu Glu Pro Asn Thr  
1 5 10 15

Leu Asn Gly Tyr Lys Ser Ser Val Thr Glu Pro Cys Pro Asp Ser Gly  
20 25 30

Glu Gln Leu Gln Pro Ala Pro Val Leu Gln Glu Glu Glu Leu Ala His  
35 40 45

Glu Thr Ala Gln Lys Gly Glu Ala Lys Cys His Lys Ser Asp Thr Gly  
50 55 60

Met Ser Lys Lys Lys Ser Arg Gln Gly Lys Leu Val Lys Gln Phe Ala  
65 70 75 80

Lys Ile Glu Glu Ser Thr Pro Val His Asp Ser Pro Gly Lys Asp Asp  
85 90 95

Ala Val Pro Asp Leu Met Gly Pro His Ser Asp Gln Gly Glu His Ser  
100 105 110

Gly Thr Val Gly Val Pro Val Ser Tyr Thr Asp Cys Ala Pro Ser Pro  
115 120 125

Val Gly Cys Ser Val Val Thr Ser Asp Ser Phe Arg Thr Lys Asp Ser  
130 135 140

Phe Arg Thr Ala Lys Ser Lys Lys Lys Arg Arg Ile Thr Arg Tyr Asp  
145 150 155 160

Ala Gln Leu Ile Leu Glu Asn Asn Ser Gly Ile Pro Lys Leu Thr Leu  
165 170 175

Arg Arg Arg His Asp Ser Ser Ser Lys Thr Asn Asp Gln Glu Asn Asp  
180 185 190

Gly Met Asn Ser Ser Lys Ile Ser Ile Lys Leu Ser Lys Asp His Asp  
195 200 205

Asn Asp Asn Asn Leu Tyr Val Ala Lys Leu Asn Asn Gly Phe Asn Ser  
210 215 220

Gly Ser Gly Ser Ser Ser Thr Lys Leu Lys Ile Gln Leu Lys Arg Asp  
225 230 235 240

Glu Glu Asn Arg Gly Ser Tyr Thr Glu Gly Leu His Glu Asn Gly Val  
245 250 255

Cys Cys Ser Asp Pro Leu Ser Leu Leu Glu Ser Arg Met Glu Val Asp  
260 265 270

Asp Tyr Ser Gln Tyr Glu Glu Glu Ser Thr Asp Asp Ser Ser Ser Ser  
275 280 285

Glu Gly Asp Glu Glu Glu Asp Asp Tyr Asp Asp Asp Phe Glu Asp Asp  
290 295 300

Phe Ile Pro Leu Pro Pro Ala Lys Arg Leu Arg Leu Ile Val Gly Lys  
305 310 315 320

Asp Ser Ile Asp Ile Asp Ile Ser Ser Arg Arg Arg Glu Asp Gln Ser  
325 330 335

Leu Arg Leu Asn Ala  
340

<210> 943

<211> 196

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (187)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 943

Xaa Leu Leu Lys Val Trp Arg Ala Xaa Gln Val Ser Val Ala Tyr Asn  
1 5 10 15

Ser Leu Asp Phe Glu Pro Glu Ile Phe Phe Ala Leu Gly Ser Pro Ile  
20 25 30

Ala Met Phe Leu Thr Ile Arg Gly Val Asp Arg Ile Asp Glu Asn Tyr  
35 40 45

Ser Leu Pro Thr Cys Lys Gly Phe Phe Asn Ile Tyr His Pro Leu Asp  
 50 55 60  
 Pro Val Ala Tyr Arg Leu Glu Pro Met Ile Val Pro Asp Leu Asp Leu  
 65 70 75 80  
 Lys Ala Val Leu Ile Pro His His Lys Gly Arg Lys Arg Leu His Leu  
 85 90 95  
 Glu Leu Lys Glu Ser Leu Ser Arg Met Gly Ser Asp Leu Lys Gln Gly  
 100 105 110  
 Phe Ile Ser Ser Leu Lys Ser Ala Trp Gln Thr Leu Asn Glu Phe Ala  
 115 120 125  
 Arg Ala His Thr Ser Ser Thr Gln Leu Gln Glu Glu Leu Glu Lys Val  
 130 135 140  
 Ala Asn Gln Ile Lys Glu Glu Glu Glu Lys Gln Val Val Glu Ala Glu  
 145 150 155 160  
 Lys Val Val Glu Ser Pro Asp Phe Ser Lys Asp Glu Asp Tyr Leu Gly  
 165 170 175  
 Lys Val Gly Lys Val Lys Trp Arg Pro Pro Xaa Leu Thr Thr Phe Ser  
 180 185 190  
 Lys Lys Asn Gln  
 195

&lt;210&gt; 944

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 944

Pro His Gly Leu Arg Cys Pro Ser Cys Pro Gln Thr Ala Val Ser Arg  
 1 5 10 15  
 Arg Gln Ala Arg Arg Met Val Thr Glu Thr Ser Arg Arg Arg Ile  
 20 25 30  
 Gln Glu Leu Glu Glu Arg Arg Arg Xaa Phe Val Glu Ala Cys Arg Ala  
 35 40 45

Arg Glu Ala Ala Phe Asp Ala Glu Tyr Gln Arg Asn Pro His Arg Val  
50 55 60

Asp Leu Asp Ile Leu Thr Phe Thr Ile Ala Leu Thr Ala Ser Glu Val  
65 70 75 80

Ile Asn Pro Leu Ile Glu Glu Leu Gly Cys Asp Lys Phe Ile Asn Arg  
85 90 95

Glu

<210> 945

<211> 123

<212> PRT

<213> Homo sapiens

<400> 945

Ser Gly Ser Pro Gly Leu Gln Glu Phe Arg Ala Pro Gly Val Gln Gln  
1 5 10 15

Asp Glu Arg Leu Ala Ser Pro Ile His Ser Thr Tyr Ile Pro Ile Pro  
20 25 30

Thr Ser Ala Ile Cys Ala Thr Gly Ser Asn Gly Ser Ala Pro Thr Arg  
35 40 45

Ile Ser Val Gln Cys Leu Ser Pro Ala Thr Thr Gly Ser Ala Ser Val  
50 55 60

Asp Leu Cys Cys Thr Arg Asp Ile Ser Leu Leu Pro Gly Glu Pro Pro  
65 70 75 80

Ile Ala Val Pro Thr Gly Val Phe Gly Pro Leu Pro Thr Gly Ser Val  
85 90 95

Gly Leu Leu Phe Asp Leu Ser Ser Leu Asn Leu Lys Gly Val Gln Val  
100 105 110

His Thr Gly Val Ile Asp Ser Asp Ile Gln Val  
115 120

<210> 946

<211> 45

<212> PRT

<213> Homo sapiens

<400> 946  
Gly Phe Leu Gly Leu Leu Phe Met Pro Gln Ala Thr Tyr Pro Gly Glu  
1 5 10 15  
Ser Leu Pro Val Leu Leu His Glu Phe Leu Ser His Arg Met His Val  
20 25 30  
Pro Leu His Phe Val Thr Ser Val Ser Pro Thr Arg Gln  
35 40 45

<210> 947  
<211> 160  
<212> PRT  
<213> Homo sapiens  
  
<220>  
<221> SITE  
<222> (27)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (29)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (56)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (110)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (132)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (133)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (147)



<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (156)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 947

Gly Pro Arg Arg Gly Pro Gly Pro Gly Gly Cys Ala Ala Pro Ala Thr  
1 5 10 15

Glu Glu Gln Glu Ala Ala Ser Ser Ser Ser Xaa Leu Xaa Glu Val Thr  
20 25 30

Leu Gly Glu Val Pro Ala Ala Glu Ser Pro Asp Pro Pro Gln Ser Pro  
35 40 45

Gln Gly Ala Ser Ser Leu Pro Xaa Thr Met Asn Tyr Pro Leu Trp Ser  
50 55 60

Gln Ser Tyr Glu Asp Ser Ser Asn Gln Glu Glu Glu Gly Pro Ser Thr  
65 70 75 80

Phe Pro Asp Leu Glu Ser Glu Phe Gln Ala Ala Leu Ser Arg Lys Val  
85 90 95

Ala Lys Leu Val His Phe Leu Leu Leu Lys Tyr Arg Ala Xaa Glu Pro  
100 105 110

Val Thr Lys Ala Glu Met Leu Gly Ser Val Val Gly Lys Leu Ala Ser  
115 120 125

Thr Ser Phe Xaa Xaa Ile Phe Lys Gln Lys Leu Ser Asp Phe Leu Cys  
130 135 140

Asn Leu Xaa Phe Trp His Ser Lys Leu Glu Trp Xaa Val Gly Pro Pro  
145 150 155 160

<210> 948

<211> 53

<212> PRT

<213> Homo sapiens

<400> 948

Ser Asn Trp Ile Ile Asp Cys Asn Cys Leu Glu Ile Tyr His Lys Asn  
1 5 10 15

Arg Leu Cys Phe Phe Gly Ile Ala Pro Asn Phe Ser Leu Leu Leu Arg  
20 25 30

Ala Ala His Ala Val Leu Ser Ser Tyr Trp Ser Gln Pro Leu Gly Glu  
35 40 45

Glu Arg Asn Ala Trp  
50

<210> 949

<211> 154

<212> PRT

<213> Homo sapiens

<400> 949

Trp Asp Tyr Ile Leu Cys Ala Gly Leu Arg Glu His Glu Glu Gly Ala  
1 5 10 15

Ile Cys His Thr Leu Glu Ala Glu Ala Cys Thr Ser Ala Ala Arg Leu  
20 25 30

Thr Val Val Gly Gly Gly Asp Gly Asn Cys Arg Ser Ala Arg Val Val  
35 40 45

Glu Lys Leu Leu Gln Gly Phe Ser Gly Phe Ala Cys Pro Ala Ala Pro  
50 55 60

Cys Leu Ala Arg Gly Glu Gly Gly Ala Thr Cys Gly Thr Leu Glu Ala  
65 70 75 80

Gly Ala Cys Arg Trp His Gly Ser Ala Ala His Leu Ala Ala Val Gly  
85 90 95

Gly Gly Asp Arg Asp Cys Ser Leu Thr Val Val Asn Leu Glu Ile Ile  
100 105 110

Cys Leu Glu Ala Leu Ser Leu Ser Trp Asp Leu Lys Arg Arg Gly Ser  
115 120 125

Pro Asn Ser Gln Gln Ser Asn Ser Lys Trp Cys Cys Lys Leu Asn His  
130 135 140

Thr Trp Thr Gly His Ser Ser Glu Asp Pro  
145 150

<210> 950

&lt;211&gt; 442

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 950

Ala Arg Gly Thr Glu Thr Cys Gly Leu Ile Gln Val Thr Leu Leu Asp  
 1 5 10 15

Thr Val Glu Leu Ala Thr Tyr Thr Val Arg Thr Phe Ala Leu His Lys  
 20 25 30

Ser Gly Ser Ser Glu Lys Arg Glu Leu Arg Gln Phe Gln Phe Met Ala  
 35 40 45

Trp Pro Asp His Gly Val Pro Glu Tyr Pro Thr Pro Ile Leu Ala Phe  
 50 55 60

Leu Arg Arg Val Lys Ala Cys Asn Pro Leu Asp Ala Gly Pro Met Val  
 65 70 75 80

Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Cys Phe Ile Val Ile  
 85 90 95

Asp Ala Met Leu Glu Arg Met Lys His Glu Lys Thr Val Asp Ile Tyr  
 100 105 110

Gly His Val Thr Cys Met Arg Ser Gln Arg Asn Tyr Met Val Gln Thr  
 115 120 125

Glu Asp Gln Tyr Val Phe Ile His Glu Ala Leu Leu Glu Ala Ala Thr  
 130 135 140

Cys Gly His Thr Glu Val Pro Ala Arg Asn Leu Tyr Ala His Ile Gln  
 145 150 155 160

Lys Leu Gly Gln Val Pro Pro Gly Glu Ser Val Thr Ala Met Glu Leu  
 165 170 175

Glu Phe Lys Leu Leu Ala Ser Ser Lys Ala His Thr Ser Arg Phe Ile  
 180 185 190

/ Ser Ala Asn Leu Pro Cys Asn Lys Phe Lys Asn Arg Leu Val Asn Ile  
 195 200 205

Met Pro Tyr Glu Leu Thr Arg Val Cys Leu Gln Pro Ile Arg Gly Val  
 210 215 220

Glu Gly Ser Asp Tyr Ile Asn Ala Ser Phe Leu Asp Gly Tyr Arg Gln  
 225 230 235 240

Gln Lys Ala Tyr Ile Ala Thr Gln Gly Pro Leu Ala Glu Ser Thr Glu

245	250	255
Asp Phe Trp Arg Met Leu Trp Glu His Asn Ser Thr Ile Ile Val Met		
260	265	270
Leu Thr Lys Leu Arg Glu Met Gly Arg Glu Lys Cys His Gln Tyr Trp		
275	280	285
Pro Ala Glu Arg Ser Ala Arg Tyr Gln Tyr Phe Val Val Asp Pro Met		
290	295	300
Ala Glu Tyr Asn Met Pro Gln Tyr Ile Leu Arg Glu Phe Lys Val Thr		
305	310	315
Asp Ala Arg Asp Gly Gln Ser Arg Thr Ile Arg Gln Phe Gln Phe Thr		
325	330	335
Asp Trp Pro Glu Gln Gly Val Pro Lys Thr Gly Glu Gly Phe Ile Asp		
340	345	350
Phe Ile Gly Gln Val His Lys Thr Lys Glu Gln Phe Gly Gln Asp Gly		
355	360	365
Pro Ile Thr Val His Cys Ser Ala Gly Val Gly Arg Thr Gly Val Phe		
370	375	380
Ile Thr Leu Ser Ile Val Leu Glu Arg Met Arg Tyr Glu Gly Val Val		
385	390	395
Asp Met Phe Gln Thr Val Lys Thr Leu Arg Thr Gln Arg Pro Ala Met		
405	410	415
Val Gln Thr Glu Asp Gln Tyr Gln Leu Cys Tyr Arg Ala Ala Leu Glu		
420	425	430
Tyr Leu Gly Ser Phe Asp His Tyr Ala Thr		
435	440	

&lt;210&gt; 951

&lt;211&gt; 82

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 951

Asn Ser Lys Val Gly Ile Ser Arg Asn Cys Val Gln Met His Pro Val			
1	5	10	15
Val Ala Leu Gln Glu Val Cys Leu Met Lys Leu Gly Lys His Phe Ala			
20	25	30	

Ile Phe Pro Leu Ala Val Phe Leu Cys Ser Leu Leu Pro Leu Phe Phe  
35 40 45

Pro Trp Phe Val Ile Ile Arg Arg Glu Val Leu Gln Arg Leu Val Ala  
50 55 60

Val Lys Glu Ser Phe Phe Asn Phe Tyr Pro Arg Val Ser His Phe Tyr  
65 70 75 80

Ser Arg

<210> 952

<211> 475

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (465)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (468)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (469)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 952

Leu Val Leu Pro Leu His Ala Val Glu Lys Thr Gly Arg Pro Gly Gln  
1 5 10 15

Pro Ala Leu Lys Met Pro Gly Lys Leu Arg Ser Asp Ala Gly Leu Glu  
20 25 30

Ser Asp Thr Ala Met Lys Lys Gly Glu Thr Leu Arg Lys Gln Thr Glu  
35 40 45

Glu Lys Glu Lys Lys Glu Lys Pro Lys Ser Asp Lys Thr Glu Glu Ile  
50 55 60

Ala Glu Glu Glu Glu Thr Val Phe Pro Lys Ala Lys Gln Val Lys Lys  
65 70 75 80

Lys Ala Glu Pro Ser Glu Val Asp Met Asn Ser Pro Lys Ser Lys Lys  
85 90 95

Ala Lys Lys Lys Glu Glu Pro Ser Gln Asn Asp Ile Ser Pro Lys Thr  
100 105 110

Lys Ser Leu Arg Lys Lys Lys Glu Pro Ile Glu Lys Lys Val Val Ser  
115 120 125

Ser Lys Thr Lys Lys Val Thr Lys Asn Glu Glu Pro Ser Glu Glu Glu  
130 135 140

Ile Asp Ala Pro Lys Pro Lys Lys Met Lys Lys Glu Lys Glu Met Asn  
145 150 155 160

Gly Glu Thr Arg Glu Lys Ser Pro Lys Leu Lys Asn Gly Phe Pro His  
165 170 175

Pro Glu Pro Asp Cys Asn Pro Ser Glu Ala Ala Ser Glu Glu Ser Asn  
180 185 190

Ser Glu Ile Glu Gln Glu Ile Pro Val Glu Gln Lys Glu Gly Ala Phe  
195 200 205

Ser Asn Phe Pro Ile Ser Glu Glu Thr Ile Lys Leu Leu Lys Gly Arg  
210 215 220

Gly Val Thr Phe Leu Phe Pro Ile Gln Ala Lys Thr Phe His His Val  
225 230 235 240

Tyr Ser Gly Lys Asp Leu Ile Ala Gln Ala Arg Thr Gly Thr Gly Lys  
245 250 255

Thr Phe Ser Phe Ala Ile Pro Leu Ile Glu Lys Leu His Gly Glu Leu  
260 265 270

Gln Asp Arg Lys Arg Gly Arg Ala Pro Gln Val Leu Val Leu Ala Pro  
275 280 285

Thr Arg Glu Leu Ala Asn Gln Val Ser Lys Asp Phe Ser Asp Ile Thr  
290 295 300

Lys Lys Leu Ser Val Ala Cys Phe Tyr Gly Gly Thr Pro Tyr Gly Gly  
305 310 315 320

Gln Phe Glu Arg Met Arg Asn Gly Ile Asp Ile Leu Val Gly Thr Pro  
325 330 335

Gly Arg Ile Lys Asp His Ile Gln Asn Gly Lys Leu Asp Leu Thr Lys  
340 345 350

Leu Lys His Val Val Leu Asp Glu Val Asp Gln Met Leu Asp Met Gly  
 355 360 365

Phe Ala Asp Gln Val Glu Glu Ile Leu Ser Val Ala Tyr Lys Lys Asp  
 370 375 380

Ser Glu Asp Asn Pro Gln Thr Leu Leu Phe Ser Ala Thr Cys Pro His  
 385 390 395 400

Trp Val Phe Asn Val Ala Lys Lys Tyr Met Lys Ser Thr Tyr Glu Gln  
 405 410 415

Val Asp Leu Ile Gly Lys Lys Thr Gln Lys Thr Ala Ile Thr Val Glu  
 420 425 430

His Leu Ala Ile Lys Cys His Trp Thr Gln Arg Ala Ala Val Ile Gly  
 435 440 445

Asp Val Ile Arg Val Tyr Ser Gly His Gln Gly Arg Thr Ile Ile Phe  
 450 455 460

Xaa Glu Thr Xaa Xaa Glu Ala Gln Glu Leu Ser  
 465 470 475

<210> 953

<211> 259

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (115)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 953

His Glu Ala Lys Trp Ala Arg Glu Glu Glu Glu Ala Gln Arg Arg Leu  
 1 5 10 15

Glu Glu Asn Arg Leu Arg Met Glu Glu Glu Ala Ala Arg Leu Arg His  
 20 25 30

Glu Glu Glu Glu Arg Lys Arg Lys Ala Leu Glu Val Gln Arg Gln Lys  
 35 40 45

Glu Leu Met Arg Gln Arg Gln Gln Gln Gln Glu Ala Leu Arg Arg Leu  
 50 55 60

Gln Gln Gln Gln Gln Gln Gln Gln Leu Ala Gln Met Lys Leu Pro Ser  
 65 70 75 80

Ser Ser Thr Trp Gly Gln Gln Ser Asn Thr Thr Ala Cys Gln Ser Gln  
                             85                            90                            95  
 Ala Thr Leu Ser Leu Ala Glu Ile Gln Lys Leu Glu Glu Glu Arg Glu  
                             100                            105                            110  
 Arg Gln Xaa Arg Glu Glu Gln Arg Arg Gln Gln Arg Glu Leu Met Lys  
                             115                            120                            125  
 Ala Leu Gln Gln Gln Gln Gln Gln Gln Gln Lys Leu Ser Gly Trp  
                             130                            135                            140  
 Gly Asn Val Ser Lys Pro Ser Gly Thr Thr Lys Ser Leu Leu Glu Ile  
                             145                            150                            155                            160  
 Gln Gln Glu Glu Ala Arg Gln Met Gln Lys Gln Gln Gln Gln Gln Gln  
                             165                            170                            175  
 Gln His Gln Gln Pro Asn Arg Ala Arg Asn Asn Thr His Ser Asn Leu  
                             180                            185                            190  
 His Thr Ser Ile Gly Asn Ser Val Trp Gly Ser Ile Asn Thr Gly Pro  
                             195                            200                            205  
 Pro Asn Gln Trp Ala Ser Asp Leu Val Ser Ser Ile Trp Ser Asn Ala  
                             210                            215                            220  
 Asp Thr Lys Asn Ser Asn Met Gly Phe Trp Asp Asp Ala Val Lys Glu  
                             225                            230                            235                            240  
 Val Gly Pro Arg Asn Ser Thr Asn Lys Asn Lys Asn Asn Ala Ile Ser  
                             245                            250                            255  
 Val Asn Leu

&lt;210&gt; 954

&lt;211&gt; 144

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE



<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (32)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (107)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (114)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (130)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (144)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 954

Ile Val Tyr Val Pro Ser His Leu His His Met Xaa Phe Glu Leu Phe  
1 5 10 15

Xaa Asn Ala Met Arg Ala Thr Val Glu His Gln Glu Asn Gln Pro Xaa  
20 25 30

Leu Thr Pro Ile Glu Val Ile Val Ala Leu Gly Lys Glu Asp Leu Thr  
35 40 45

Ile Lys Ile Ser Asp Arg Gly Gly Gly Val Pro Leu Arg Ile Ile Asp  
50 55 60

Arg Leu Phe Ser Tyr Thr Tyr Ser Thr Ala Pro Thr Pro Val Met Asp  
65 70 75 80

Asn Ser Arg Asn Ala Pro Leu Ala Gly Phe Gly Tyr Gly Leu Pro Ile  
85 90 95

Ser Arg Leu Tyr Ala Lys Tyr Phe Gln Gly Xaa Leu Asn Leu Tyr Ser  
100 105 110

Leu Xaa Gly Tyr Gly Thr Asp Ala Ile Ile Tyr Leu Lys Ala Leu Val

115

120

125

Thr Xaa Cys Gln Phe Leu Val Cys Met Gln Ser Thr Phe Lys Glu Xaa  
 130 135 140

&lt;210&gt; 955

&lt;211&gt; 243

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 955

Thr Arg Pro Arg Thr Arg Gly Leu Trp Arg Pro Gly Trp Arg Cys Val  
 1 5 10 15

Pro Phe Cys Gly Trp Arg Trp Ile His Pro Gly Ser Pro Thr Arg Ala  
 20 25 30

Ala Glu Arg Val Glu Pro Phe Leu Arg Pro Glu Trp Ser Gly Thr Gly  
 35 40 45

Gly Ala Glu Arg Gly Leu Arg Trp Leu Gly Thr Trp Lys Arg Cys Ser  
 50 55 60

Leu Arg Ala Arg His Pro Ala Leu Gln Pro Pro Arg Arg Pro Lys Ser  
 65 70 75 80

Ser Asn Pro Phe Thr Arg Ala Gln Glu Glu Glu Arg Arg Arg Gln Asn  
 85 90 95

Lys Thr Thr Leu Thr Tyr Val Ala Ala Val Ala Val Gly Met Leu Gly  
 100 105 110

Ala Ser Tyr Ala Ala Val Pro Leu Tyr Arg Leu Tyr Cys Gln Thr Thr  
 115 120 125

Gly Leu Gly Gly Ser Ala Val Ala Gly His Ala Ser Asp Lys Ile Glu  
 130 135 140

Asn Met Val Pro Val Lys Asp Arg Ile Ile Lys Ile Ser Phe Asn Ala  
 145 150 155 160

Asp Val His Ala Ser Leu Gln Trp Asn Phe Arg Pro Gln Gln Thr Glu  
 165 170 175

Ile Tyr Val Val Pro Gly Glu Thr Ala Leu Ala Phe Tyr Arg Ala Lys  
 180 185 190

Asn Pro Thr Asp Lys Pro Val Ile Gly Ile Ser Thr Tyr Asn Ile Val  
195 200 205

Pro Phe Glu Ala Gly Gln Tyr Phe Asn Lys Ile Gln Cys Phe Cys Phe  
210 215 220

Glu Glu Gln Arg Leu Asn Pro Gln Glu Glu Val Gly Tyr Ala Ser Val  
225 230 235 240

Phe Leu His

<210> 956

<211> 184

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (16)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 956

Gly Leu Val Val Thr Leu Leu Thr His Xaa Phe Xaa Ile Asn Ser Xaa  
1 5 10 15

Asn Phe Cys Thr Ser Ala Lys Asp Ala Phe Val Ile Leu Val Glu Asn  
20 25 30

Ala Leu Arg Val Ala Thr Ile Asn Thr Val Gly Asp Phe Met Leu Phe  
35 40 45

Leu Gly Lys Val Leu Ile Val Cys Ser Thr Gly Leu Ala Gly Ile Met  
50 55 60

Leu Leu Asn Tyr Gln Gln Asp Tyr Thr Val Trp Val Leu Pro Leu Ile  
65 70 75 80

Ile Val Cys Leu Phe Ala Phe Leu Val Ala His Cys Phe Leu Ser Ile  
                     85                    90                    95

Tyr Glu Met Val Val Asp Val Leu Phe Leu Cys Phe Ala Ile Asp Thr  
                     100                    105                    110

Lys Tyr Asn Asp Gly Ser Pro Gly Arg Glu Phe Tyr Met Asp Lys Val  
                     115                    120                    125

Leu Met Glu Phe Val Glu Asn Ser Arg Lys Ala Met Lys Glu Ala Gly  
                     130                    135                    140

Lys Gly Gly Val Ala Asp Ser Arg Glu Leu Asn Arg Cys Phe Gly Ser  
                     145                    150                    155                    160

Lys Phe Cys Leu Asn Leu Ala Asp Gly Tyr Gly Asn Pro Leu Thr Phe  
                     165                    170                    175

Gln Asn Asn Ile Tyr Thr His Thr  
                     180

&lt;210&gt; 957

&lt;211&gt; 124

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (119)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 957

Ser Arg Ser Pro Val Leu Asp Pro Ser Glu Pro Gln Pro Leu Ala Ala  
   1                    5                    10                    15

Met His Val Ile Lys Arg Asp Gly Arg Gln Glu Arg Val Met Phe Asp  
                     20                    25                    30

Lys Ile Thr Ser Arg Ile Gln Lys Leu Cys Tyr Gly Leu Asn Met Asp  
                     35                    40                    45

Phe Val Asp Pro Ala Gln Ile Thr Met Lys Val Ile Gln Gly Leu Tyr  
                     50                    55                    60

Ser Gly Val Thr Thr Val Glu Leu Asp Thr Leu Ala Ala Glu Thr Ala  
   65                    70                    75                    80

Ala Thr Leu Thr Thr Lys His Pro Asp Tyr Ala Ile Leu Ala Ala Arg  
                     85                    90                    95

Ile Ala Val Ser Asn Leu His Lys Glu Thr Lys Lys Val Phe Ser Asp  
100 105 110

Val Met Glu Asp Leu Tyr Xaa Leu His Lys Ser Thr  
115 120

<210> 958

<211> 117

<212> PRT

<213> Homo sapiens

<400> 958

Ser Ile Met Phe Val Ala Leu Met Lys Tyr Phe Gln Glu Met Cys Pro  
1 5 10 15

Gly Val Ala Leu Ala Met Leu Thr Arg Pro Leu Val Thr Gln Arg Ala  
20 25 30

Leu Gly Pro Asp Gly Asp Leu Pro Leu Arg Phe Leu Tyr Gln Ala Leu  
35 40 45

Ser Ser His Gly Ala Ser Gly Thr Ser Leu Leu Ser Trp Glu Lys Gly  
50 55 60

Asn Trp Leu Pro Arg Gln Val Val Glu Ser Val Ala Gly Thr Arg Leu  
65 70 75 80

Glu Ala His Leu Val Val Asn Arg Ala Gln Trp Gly Arg Leu Gly Met  
85 90 95

Leu Trp Ser Met Gly Leu Phe Pro Gly Glu Cys Ser Gly Met Ser Ser  
100 105 110

Gln Leu Leu Trp Cys  
115

<210> 959

<211> 267

<212> PRT

<213> Homo sapiens

<400> 959

Ser Met Pro Gly Trp Arg Leu Leu Thr Gln Val Gly Ala Gln Val Leu  
1 5 10 15

Gly Arg Leu Gly Asp Gly Leu Gly Ala Ala Leu Gly Pro Gly Asn Arg

20	25	30
Thr His Ile Trp Leu Phe Val Arg Gly Leu His Gly Lys Ser Gly Thr		
35	40	45
Trp Trp Asp Glu His Leu Ser Glu Glu Asn Val Pro Phe Ile Lys Gln		
50	55	60
Leu Val Ser Asp Glu Asp Lys Ala Gln Leu Ala Ser Lys Leu Cys Pro		
65	70	75
Leu Lys Asp Glu Pro Trp Pro Ile His Pro Trp Glu Pro Gly Ser Phe		
85	90	95
Arg Val Gly Leu Ile Ala Leu Lys Leu Gly Met Met Pro Leu Trp Thr		
100	105	110
Lys Asp Gly Gln Lys His Val Val Thr Leu Leu Gln Val Gln Asp Cys		
115	120	125
His Val Leu Lys Tyr Thr Ser Lys Glu Asn Cys Asn Gly Lys Met Ala		
130	135	140
Thr Leu Ser Val Gly Gly Lys Thr Val Ser Arg Phe Arg Lys Ala Thr		
145	150	155
Ser Ile Leu Glu Phe Tyr Arg Glu Leu Gly Leu Pro Pro Lys Gln Thr		
165	170	175
Val Lys Ile Phe Asn Ile Thr Asp Asn Ala Ala Ile Lys Pro Gly Thr		
180	185	190
Pro Leu Tyr Ala Ala His Phe Arg Pro Gly Gln Tyr Val Asp Val Thr		
195	200	205
Ala Lys Thr Ile Gly Lys Gly Phe Gln Gly Val Met Lys Arg Trp Gly		
210	215	220
Phe Lys Gly Gln Pro Ala Thr His Gly Gln Thr Lys Thr His Arg Arg		
225	230	235
Pro Gly Ala Val Ala Thr Gly Asp Ile Gly Arg Val Trp Pro Gly Thr		
245	250	255
Lys Met Pro Gly Lys Met Gly Lys Cys Gly Glu		
260	265	

&lt;210&gt; 960

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 960

Pro Arg Val Arg Ala Arg Trp Arg Arg Gly His Phe Phe His Cys Pro  
1 5 10 15  
Ser Glu Gly Thr Leu Ser Ser Val Ser Gly Ala Val Phe Gln Leu Arg  
20 25 30  
Val Val Pro Arg Glu Ser Glu Arg Pro Ser Pro Gly Trp Cys Asp Gly  
35 40 45  
Arg Gly Gly Gly Gln Ala Gly Arg Ala Ala Val His Gln Arg Gly Gly  
50 55 60  
Arg Ala Gly Gln Arg Arg Arg Pro Gly Leu Leu Pro Asp Leu Gly Val  
65 70 75 80  
Ser Ala Val Gly Gly His Gly Arg His Pro Arg Pro His Arg Pro Leu  
85 90 95  
Arg Leu His Leu Leu Pro Ala Arg Leu Arg Pro Ala Leu Pro Ala Pro  
100 105 110  
His Ser Gln Gly Gly Lys Glu Val Glu Gln Ile Phe Gln Ile Thr Glu  
115 120 125  
Thr Ser Leu Tyr Arg Arg Pro His Arg Gly Pro Leu His Leu Arg Pro  
130 135 140  
Val Leu Asp Val Pro Leu Arg His Gly Ala Arg Leu Leu Lys Trp Gly  
145 150 155 160  
Pro Gly Gly Leu Phe  
165

&lt;210&gt; 961

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 961

Thr Ala Thr Thr Glu Val Glu Val Leu Asp Met Xaa Val Leu Pro Leu

1 5 10 15

Val Tyr Ile Leu Met Asn Ile Asp Val Asn Lys Lys Gly Lys Lys Gln  
20 25 30

Asn Thr Arg Phe Phe Pro Ile Leu Met Leu Ala Pro Ser Lys Ser Leu  
35 40 45

Pro Thr Arg Met Asn Thr Phe Pro Lys Leu Asn Lys Phe Leu Phe Ile  
50 55 60

Lys Leu Arg Leu Lys Phe Val Gly Leu Gly Ser Phe Leu Lys Pro Arg  
65 70 75 80

Ala Cys Pro Leu Pro Thr Pro Pro Ser Phe Ala Pro Lys  
85 90

<210> 962

<211> 173

<212> PRT

<213> Homo sapiens

<400> 962

Glu Pro Lys Ala Lys Pro His Arg Ser Arg Gly Ser Gly Thr Arg Ala  
1 5 10 15

Val Arg Arg Arg Ser Cys Leu Gln Ser Ala Ala Glu Ala Ala His Gly  
20 25 30

Pro Asp Thr Pro Ala Ala Arg Ala Leu Gln Ser Leu Gly His Pro Val  
35 40 45

Val Gly Asp Leu Thr Tyr Gly Glu Val Ser Gly Arg Glu Asp Arg Pro  
50 55 60

Phe Arg Met Met Leu His Ala Phe Tyr Leu Arg Ile Pro Thr Asp Thr  
65 70 75 80

Glu Cys Val Glu Val Cys Thr Pro Asp Pro Phe Leu Pro Ser Leu Asp  
85 90 95

Ala Cys Trp Ser Pro His Thr Leu Leu Gln Ser Leu Asp Gln Leu Val  
100 105 110

Gln Ala Leu Arg Ala Thr Pro Asp Pro Asp Pro Glu Asp Arg Gly Pro  
115 120 125

Arg Pro Gly Ser Pro Ser Ala Leu Leu Pro Gly Pro Gly Arg Pro Pro  
130 135 140



Pro Pro Pro Thr Lys Pro Pro Glu Thr Glu Ala Gln Arg Gly Pro Cys  
 145 150 155 160

Leu Gln Trp Leu Ser Glu Trp Thr Leu Glu Pro Asp Ser  
 165 170

<210> 963

<211> 80

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (48)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 963

Ser Ser Arg Gly Glu Pro Arg Ala Ala Leu Leu Cys Lys Arg Ser Asp  
 1 5 10 15

Val Leu Leu Glu Pro Phe Arg Arg Gly Val Met Glu Lys Leu Gln Leu  
 20 25 30

Gly Pro Glu Ile Leu Gln Arg Glu Asn Pro Arg Leu Ile Tyr Xaa Xaa  
 35 40 45

Leu Ser Gly Phe Gly Gln Ser Gly Lys Leu Leu Pro Val Ser Trp Pro  
 50 55 60

Arg Tyr Gln Leu Phe Gly Phe Cys Ser Gly Gly Arg Xaa Gln His Ile  
 65 70 75 80

<210> 964

<211> 89  
<212> PRT  
<213> Homo sapiens

<400> 964

Ala Glu Ala Leu Gly Ser Pro Cys Phe Pro Gln Asp Leu Leu Leu Ala  
1 5 10 15  
Asn Arg Ser Ser Arg Gln Leu Leu Gln Cys Val Ser His Pro Ala Asn  
20 25 30  
Arg Ser Val Cys Ile Ser Val Lys Glu Asn Ser Leu Val Pro Pro Gly  
35 40 45  
Ser Ala Trp Lys Leu Asp Ala Asn Phe Tyr Ile Ala Trp Gln Thr Asp  
50 55 60  
Gln Gln Cys Gln Ala Leu Ile Cys Ile Leu His Tyr Pro Phe Thr Trp  
65 70 75 80  
Phe Leu Ala Leu Asn Gly Leu Gln Pro  
85

<210> 965  
<211> 323  
<212> PRT  
<213> Homo sapiens

<220>

<221> SITE

<222> (218)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 965

Gly Arg Ala Ser Glu Arg Ala Ser Arg Gln Gln Ala Ala Gly Gly Arg  
1 5 10 15  
Ala Asp Gly Thr Glu Gly Gly Ser Glu Arg Ala Val Ser Lys Pro Ala  
20 25 30  
Arg Ala Val Gly Ser Arg Gly Gln Pro Arg Phe Leu Arg Ser Leu Arg  
35 40 45  
Pro Pro Pro Trp Ser Pro Gln Arg Leu Arg Cys Pro Glu Asp Arg Thr  
50 55 60  
Arg Pro Gly Pro Ala Met Ala Ser Leu Leu Lys Val Asp Gln Glu Val  
65 70 75 80

Lys Leu Lys Val Asp Ser Phe Arg Glu Arg Ile Thr Ser Glu Ala Glu  
                   85                                  90                                  95

Asp Leu Val Ala Asn Phe Phe Pro Lys Lys Leu Leu Glu Leu Asp Ser  
                   100                                  105                                  110

Phe Leu Lys Glu Pro Ile Leu Asn Ile His Asp Leu Thr Gln Ile His  
                   115                                  120                                  125

Ser Asp Met Asn Leu Pro Val Pro Asp Pro Ile Leu Leu Thr Asn Ser  
                   130                                  135                                  140

His Asp Gly Leu Asp Gly Pro Thr Tyr Lys Lys Arg Arg Leu Asp Glu  
                   145                                  150                                  155                                  160

Cys Glu Glu Ala Phe Gln Gly Thr Lys Val Phe Val Met Pro Asn Gly  
                   165                                  170                                  175

Met Leu Lys Ser Asn Gln Gln Leu Val Asp Ile Ile Glu Lys Val Lys  
                   180                                  185                                  190

Pro Glu Ile Arg Leu Leu Ile Glu Lys Cys Asn Thr Val Lys Met Trp  
                   195                                  200                                  205

Val Gln Leu Leu Ile Pro Arg Ile Glu Xaa Gly Asn Asn Phe Gly Val  
                   210                                  215                                  220

Ser Ile Gln Glu Glu Thr Val Ala Glu Leu Arg Thr Val Glu Ser Glu  
                   225                                  230                                  235                                  240

Ala Ala Ser Tyr Leu Asp Gln Ile Ser Arg Tyr Tyr Ile Thr Arg Ala  
                   245                                  250                                  255

Lys Leu Val Ser Lys Ile Ala Lys Tyr Pro His Val Glu Asp Tyr Arg  
                   260                                  265                                  270

Arg Thr Val Thr Glu Ile Asp Glu Lys Glu Tyr Ile Ser Leu Arg Leu  
                   275                                  280                                  285

Ile Ile Ser Glu Leu Arg Asn Gln Tyr Val Thr Leu His Asp Met Ile  
                   290                                  295                                  300

Leu Lys Asn Ile Glu Lys Ile Lys Arg Pro Arg Ser Ser Asn Ala Glu  
                   305                                  310                                  315                                  320

Thr Leu Tyr

&lt;210&gt; 966

<211> 314  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (39)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (300)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 966  
Val Ser Pro Gln Lys Ala Ala Ser Leu Val Arg Ile Arg Trp Arg His  
1 5 10 15

Val Arg Pro Ser Pro Pro Ser Ala Ser Arg Leu Arg Arg Leu Pro Pro  
20 25 30

Arg His Leu Thr Val Ala Xaa Arg Pro Arg Arg Glu Gly Val Gly Thr  
35 40 45

Gly Ser Arg Ala Val Leu Cys Ile Leu Ala Thr Cys Gly Ser Lys Met  
50 55 60

Ser Asp Ile Gly Asp Trp Phe Arg Ser Ile Pro Ala Ile Thr Arg Tyr  
65 70 75 80

Trp Phe Ala Ala Thr Val Ala Val Pro Leu Val Gly Lys Leu Gly Leu  
85 90 95

Ile Ser Pro Ala Tyr Leu Phe Leu Trp Pro Glu Ala Phe Leu Tyr Arg  
100 105 110

Phe Gln Ile Trp Arg Pro Ile Thr Ala Thr Phe Tyr Phe Pro Val Gly  
115 120 125

Pro Gly Thr Gly Phe Leu Tyr Leu Val Asn Leu Tyr Phe Leu Tyr Gln  
130 135 140

Tyr Ser Thr Arg Leu Glu Thr Gly Ala Phe Asp Gly Arg Pro Ala Asp  
145 150 155 160

Tyr Leu Phe Met Leu Leu Phe Asn Trp Ile Cys Ile Val Ile Thr Gly  
165 170 175

Leu Ala Met Asp Met Gln Leu Leu Met Ile Pro Leu Ile Met Ser Val  
180 185 190

Leu Tyr Val Trp Ala Gln Leu Asn Arg Asp Met Ile Val Ser Phe Trp  
195 200 205

Phe Gly Thr Arg Phe Lys Ala Cys Tyr Leu Pro Trp Val Ile Leu Gly  
210 215 220

Phe Asn Tyr Ile Ile Gly Gly Ser Val Ile Asn Glu Leu Ile Gly Asn  
225 230 235 240

Leu Val Gly His Leu Tyr Phe Phe Leu Met Phe Arg Tyr Pro Met Asp  
245 250 255

Leu Gly Gly Arg Asn Phe Leu Ser Thr Pro Gln Phe Leu Tyr Arg Trp  
260 265 270

Leu Pro Ser Arg Arg Gly Gly Val Ser Gly Phe Gly Val Pro Pro Ala  
275 280 285

Ser Met Arg Arg Ala Ala Asp Gln Asn Gly Gly Xaa Gly Arg His Asn  
290 295 300

Trp Gly Gln Gly Phe Arg Leu Gly Asp Gln  
305 310

<210> 967

<211> 181

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (163)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (175)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 967

Thr Ser Ser Asp Thr Leu Thr Val Leu Ser Arg Ala Arg Leu Gly Ser  
1 5 10 15

Leu Leu Trp Gln Asn Leu Gly Ser Gln Glu Val Leu Val Pro Gly Asn  
20 25 30

Ser Cys Phe Ser Gly Ala Gly Leu Tyr Ser Leu Gln Pro Leu Ala Leu  
35 40 45

Pro Ser Trp Asn Gln Gly Gln Arg Leu Ser Pro Thr Leu Val Ser Ile  
50 55 60

Phe Gln Lys Thr Gly Asn Ala Val Arg Ala Ile Gly Arg Leu Ser Ser  
65 70 75 80

Met Ala Met Ile Ser Gly Leu Ser Gly Arg Lys Ser Ser Thr Gly Ser  
85 90 95

Pro Thr Ser Pro Leu Asn Ala Glu Lys Leu Glu Ser Glu Glu Asp Val  
100 105 110

Ser Gln Ala Phe Leu Glu Ala Val Ala Glu Glu Lys Pro His Val Lys  
115 120 125

Pro Tyr Phe Ser Lys Thr Ile Arg Asp Leu Glu Val Val Glu Gly Ser  
130 135 140

Ala Ala Arg Phe Asp Cys Lys Ile Glu Gly Tyr Pro Asp Pro Glu Val  
145 150 155 160

Val Trp Xaa Gln Arg Trp Thr Ser Ser Ile Arg Glu Ser Arg Xaa Phe  
165 170 175

Pro Asp Arg Leu Arg  
180

<210> 968  
<211> 291  
<212> PRT  
<213> Homo sapiens

<400> 968  
His Gly Ala Gly Glu Ser Glu Pro Ser Ser Arg Val Pro Arg Arg Ala  
1 5 10 15

Ala Ser Pro Gly His Val Pro Arg Leu Arg Gly Thr Arg Pro Glu Leu  
20 25 30

Arg Glu Arg Arg Arg Val Arg Arg Pro Arg Ala Pro Pro Ala Ala Ala  
35 40 45

Gln Ala Ala Gln Gln Lys Phe His Leu Val Pro Ser Ile Asn Thr Met  
50 55 60

Ser Gly Ser Gln Glu Leu Gln Trp Met Val Gln Pro His Phe Leu Gly  
65 70 75 80

Pro Ser Ser Tyr Pro Arg Pro Leu Thr Tyr Pro Gln Tyr Ser Pro Pro

85

90

95

Gln Pro Arg Pro Gly Val Ile Arg Ala Leu Gly Pro Pro Pro Gly Val  
100 105 110

Arg Arg Arg Pro Cys Glu Gln Ile Ser Pro Glu Glu Glu Glu Arg Arg  
115 120 125

Arg Val Arg Arg Glu Arg Asn Lys Leu Ala Ala Ala Lys Cys Arg Asn  
130 135 140

Arg Arg Lys Glu Leu Thr Asp Phe Leu Gln Ala Glu Thr Asp Lys Leu  
145 150 155 160

Glu Asp Glu Lys Ser Gly Leu Gln Arg Glu Ile Glu Glu Leu Gln Lys  
165 170 175

Gln Lys Glu Arg Leu Glu Leu Val Leu Glu Ala His Arg Pro Ile Cys  
180 185 190

Lys Ile Pro Glu Gly Ala Lys Glu Gly Asp Thr Gly Ser Thr Ser Gly  
195 200 205

Thr Ser Ser Pro Pro Ala Pro Cys Arg Pro Val Pro Cys Ile Ser Leu  
210 215 220

Ser Pro Gly Pro Val Leu Glu Pro Glu Ala Leu His Thr Pro Thr Leu  
225 230 235 240

Met Thr Thr Pro Ser Leu Thr Pro Phe Thr Pro Ser Leu Val Phe Thr  
245 250 255

Tyr Pro Ser Thr Pro Glu Pro Cys Ala Ser Ala His Arg Lys Ser Ser  
260 265 270

Ser Ser Ser Gly Asp Pro Ser Ser Asp Pro Leu Gly Ser Pro Thr Leu  
275 280 285

Leu Ala Leu  
290

&lt;210&gt; 969

&lt;211&gt; 313

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (62)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (121)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (137)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (312)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (313)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 969

Glu Glu Glu Lys Lys Asp Ser Gly Val Ala Ser Thr Glu Asp Ser Ser  
1 5 10 15

Ser Ser His Ile Thr Ala Ala Ala Ile Ala Ala Lys Lys His Pro Phe  
20 25 30

Tyr Thr Xaa Pro Ala Val Val Met Ala His Gly Glu Gln Pro Ile Pro  
35 40 45

Gly Leu Ile Asn Tyr Ser His His Ser Thr Asp Glu Arg Xaa Pro Asp  
50 55 60

Ser Ile Ile Ser Arg Gly Val Gln Val Leu Pro Arg Asp Thr Ala Ser  
65 70 75 80

Leu Ser Thr Thr Pro Ser Glu Ser Pro Arg Ala Gln Ala Thr Ser Arg  
85 90 95

Leu Ser Thr Ala Ser Cys Pro Thr Pro Lys Val Gln Ser Arg Cys Ser  
100 105 110

Ser Lys Glu Asn Ile Leu Arg Ala Xaa His Ser Ala Val Asp Ile Thr  
115 120 125



Lys Val Ala Arg Arg His Arg Met Xaa Pro Phe Pro Leu Thr Ser Met  
130 135 140

Asp Lys Ala Phe Ile Thr Val Leu Glu Met Thr Pro Val Leu Gly Thr  
145 150 155 160

Glu Ile Ile Asn Tyr Arg Asp Gly Met Gly Arg Val Leu Ala Gln Asp  
165 170 175

Val Tyr Ala Lys Asp Asn Leu Pro Pro Phe Pro Ala Ser Val Lys Asp  
180 185 190

Gly Tyr Ala Val Arg Ala Ala Asp Gly Pro Gly Asp Arg Phe Ile Ile  
195 200 205

Gly Glu Ser Gln Ala Gly Glu Gln Pro Thr Gln Thr Val Met Pro Gly  
210 215 220

Gln Val Met Arg Val Thr Thr Gly Ala Pro Ile Pro Cys Gly Ala Asp  
225 230 235 240

Ala Val Val Gln Val Glu Asp Thr Glu Leu Ile Arg Glu Ser Asp Asp  
245 250 255

Gly Thr Glu Glu Leu Glu Val Arg Ile Leu Val Gln Ala Arg Pro Gly  
260 265 270

Gln Asp Ile Arg Pro Ile Gly His Asp Ile Lys Arg Gly Glu Cys Val  
275 280 285

Leu Ala Lys Gly Thr His Met Gly Pro Ser Glu Ile Gly Leu Leu Ala  
290 295 300

Thr Val Gly Val Thr Glu Val Xaa Xaa  
305 310

<210> 970

<211> 42

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 970

His Met Lys Lys Gln Leu Leu Val Pro Asp Tyr Gly His Phe His Val

1                      5                      10                      15  
Xaa Glu Phe Leu Lys Leu Ser Leu Leu Arg Met Val Leu Leu Pro Ala  
20                      25                      30  
Asp Ser Tyr Leu Phe Val Phe Ser Ser Phe  
35                      40

<210> 971  
<211> 67  
<212> PRT  
<213> Homo sapiens

<400> 971  
Gln Lys Asp Arg Glu Ile Arg Ile Phe Cys Ala Glu Ser Pro Lys Phe  
1                      5                      10                      15  
Pro Pro Glu Cys Asn Leu Gln Leu Pro Tyr Leu Leu Ser His Met Pro  
20                      25                      30  
Ser Asn Met Leu Asp Trp Leu Ile His Arg Pro Thr Gln Asn Thr Asn  
35                      40                      45  
Val Thr Cys Ser Cys Ser Leu Val Ala Ile Cys Leu Phe Ser Met Tyr  
50                      55                      60  
Pro Ala Trp  
65

<210> 972  
<211> 54  
<212> PRT  
<213> Homo sapiens

<400> 972  
Ile Val Phe Phe Phe Ser Leu Phe Tyr Lys Cys Gln Phe Asn Ser Arg  
1                      5                      10                      15  
Ala Leu Ala Gln Tyr Phe Leu Met Ile Phe Ser Pro Arg Lys Arg Arg  
20                      25                      30  
Lys Ser Leu Leu Val Thr Gln Leu Arg Cys Gln Thr Ser Ser Glu Thr  
35                      40                      45  
Cys Thr Val Ala Ala Tyr  
50

<210> 973  
<211> 102  
<212> PRT  
<213> Homo sapiens

<400> 973  
Val Val Leu Phe Glu His Lys Leu His Phe Tyr Phe Leu Met Gln Arg  
1 5 10 15  
Met Asn Lys Leu Asn Thr Cys Phe Glu Asp Arg Ser Arg Cys Ser Val  
20 25 30  
Trp His His Val Ile Ile Cys Leu Phe Tyr Asn Ile His Val Ser Leu  
35 40 45  
Arg Asn His Gly Arg Asp Val Arg Ala Glu Tyr Thr Gln Gln Met Leu  
50 55 60  
Lys Glu Lys Glu Gly Ser Val Leu Gln Lys Lys Lys Lys Arg Thr Asn  
65 70 75 80  
Arg Ile Leu Thr Leu Leu Thr Phe Pro Asn Phe Pro Met Leu Leu Val  
85 90 95  
Asn Ile Ile Ile Val Ser  
100

<210> 974  
<211> 365  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (297)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (316)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (321)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (335)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (347)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (363)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 974

Gly Met Lys Thr Asn Gly Gly Arg Cys Arg Val Arg Ala Leu Cys Trp  
 1 5 10 15

Ser Arg Arg Glu Trp Arg Gly Ala Gly Met Ala Gln Lys Lys Tyr Leu  
 20 25 30

Gln Ala Lys Leu Thr Gln Phe Leu Arg Glu Asp Arg Ile Gln Leu Trp  
 35 40 45

Lys Pro Pro Tyr Thr Asp Glu Asn Lys Lys Val Gly Leu Ala Leu Lys  
 50 55 60

Asp Leu Ala Lys Gln Tyr Ser Asp Arg Leu Glu Cys Cys Glu Asn Glu  
 65 70 75 80

Val Glu Lys Val Ile Glu Glu Ile Arg Cys Lys Ala Ile Glu Arg Gly  
 85 90 95

Thr Gly Asn Asp Asn Tyr Arg Thr Thr Gly Ile Ala Thr Ile Glu Val  
 100 105 110

Phe Leu Pro Pro Arg Leu Lys Lys Asp Arg Lys Asn Leu Leu Glu Thr  
 115 120 125

Arg Leu His Ile Thr Gly Arg Glu Leu Arg Ser Lys Ile Ala Glu Thr  
 130 135 140

Phe Gly Leu Gln Glu Asn Tyr Ile Lys Ile Val Ile Asn Lys Lys Gln  
 145 150 155 160

Leu Gln Leu Gly Lys Thr Leu Glu Glu Gln Gly Val Ala His Asn Val  
 165 170 175

Lys Ala Met Val Leu Glu Leu Lys Gln Ser Glu Glu Asp Ala Arg Lys  
 180 185 190

Asn Phe Gln Leu Glu Glu Glu Glu Gln Asn Glu Ala Lys Leu Lys Glu  
195 200 205

Lys Gln Ile Gln Arg Thr Lys Arg Gly Leu Glu Ile Leu Ala Lys Arg  
210 215 220

Ala Ala Glu Thr Val Val Asp Pro Glu Met Thr Pro Tyr Leu Asp Ile  
225 230 235 240

Ala Asn Gln Thr Gly Arg Ser Ile Arg Ile Pro Pro Ser Glu Arg Lys  
245 250 255

Ala Leu Met Leu Ala Met Gly Tyr His Glu Lys Gly Arg Ala Phe Leu  
260 265 270

Lys Arg Lys Glu Tyr Gly Ile Ala Leu Pro Cys Leu Leu Asp Ala Asp  
275 280 285

Lys Tyr Phe Cys Glu Cys Cys Arg Xaa Leu Leu Asp Thr Val Asp Asn  
290 295 300

Tyr Ala Val Leu Gln Leu Asp Ile Val Trp Cys Xaa Phe Arg Leu Glu  
305 310 315 320

Xaa Leu Glu Cys Leu Asp Asp Ala Glu Lys Lys Leu Asn Leu Xaa Gln  
325 330 335

Lys Cys Phe Lys Asn Cys Tyr Gly Glu Asn Xaa Gln Arg Leu Val His  
340 345 350

Ile Lys Val Cys Ser Trp Glu Phe Ile Leu Xaa Ala Arg  
355 360 365

<210> 975

<211> 146

<212> PRT

<213> Homo sapiens

<400> 975

Arg Gly Cys Lys Arg Glu Gly Leu Ala Met Ser Ser Leu Ile Arg Arg  
1 5 10 15

Val Ile Ser Thr Ala Lys Ala Pro Gly Ala Ile Gly Pro Tyr Ser Gln  
20 25 30

Ala Val Leu Val Asp Arg Thr Ile Tyr Ile Ser Gly Gln Ile Gly Met  
35 40 45

Asp Pro Ser Ser Gly Gln Leu Val Ser Gly Gly Val Ala Glu Glu Ala  
50 55 60

Lys Gln Ala Leu Lys Asn Met Gly Glu Ile Leu Lys Ala Ala Gly Cys  
65 70 75 80

Asp Phe Thr Asn Val Val Lys Thr Thr Val Leu Leu Ala Asp Ile Asn  
85 90 95

Asp Phe Asn Thr Val Asn Glu Ile Tyr Lys Gln Tyr Phe Lys Ser Asn  
100 105 110

Phe Pro Ala Arg Ala Ala Tyr Gln Val Ala Ala Leu Pro Lys Gly Ser  
115 120 125

Arg Ile Glu Ile Glu Ala Val Ala Ile Gln Gly Pro Leu Thr Thr Ala  
130 135 140

Ser Leu  
145

<210> 976

<211> 80

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (61)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (71)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 976

Ser Ser Glu Leu Leu Leu His Ser Phe Leu Gly Ser Val Ser Ser Gln  
1 5 10 15  
Asn His Arg Tyr Pro Xaa Xaa Ser Gln Thr Thr Ala Leu Gly Glu Gly  
20 25 30  
Thr Ile Arg Phe Thr Xaa Gly Phe His Thr Leu Met Leu Leu Ala Phe  
35 40 45  
Asn Leu Thr Thr Leu Asp Cys Gln Val Phe Thr Asp Xaa Trp Thr Trp  
50 55 60  
Ile Gln Asp Trp Glu Cys Xaa Gly Met Val Trp Gln Gln Cys Leu Leu  
65 70 75 80

<210> 977

<211> 59

<212> PRT

<213> Homo sapiens

<400> 977

Thr Asp Asp Glu Phe Ser Gln Met Thr Leu Arg Asn Cys Phe Thr Lys  
1 5 10 15  
Asn Lys Val Ile Tyr Leu Leu Trp Glu Glu Leu Pro Ser Phe Cys Phe  
20 25 30  
Ser Ser Leu Pro Pro Phe Pro Cys Gly Cys Arg Ala Arg Ser Val Arg  
35 40 45  
Ser Trp Phe Cys Pro Ala Met Ile Arg Glu Ser  
50 55

<210> 978

<211> 203

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (188)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 978

Leu Trp Glu Leu Lys Lys Leu Ser Val His Phe His Pro Ser Val Ala  
1 5 10 15

Leu Phe Ala Lys Thr Ile Leu Gln Gly Asn Tyr Ile Gln Tyr Ser Gly  
20 25 30

Asp Pro Leu Gln Asp Phe Thr Leu Met Arg Phe Leu Asp Arg Phe Val  
35 40 45

Tyr Arg Asn Pro Lys Pro His Lys Gly Lys Glu Asn Thr Asp Ser Val  
50 55 60

Val Met Gln Pro Lys Arg Lys His Phe Ile Lys Asp Ile Arg His Leu  
65 70 75 80

Pro Val Asn Ser Lys Glu Phe Leu Ala Lys Glu Glu Ser Gln Ile Pro  
85 90 95

Val Asp Glu Val Phe Phe His Arg Tyr Tyr Lys Lys Val Ala Val Lys  
100 105 110

Glu Lys Gln Lys Arg Asp Ala Asp Glu Glu Ser Ile Glu Asp Val Asp  
115 120 125

Asp Glu Glu Phe Glu Glu Leu Ile Asp Thr Phe Glu Asp Asp Asn Cys  
130 135 140

Phe Ser Ser Gly Lys Asp Asp Met Asp Phe Ala Gly Asn Val Lys Lys  
145 150 155 160

Arg Thr Lys Gly Ala Lys Asp Asn Thr Leu Asp Glu Asp Ser Glu Gly  
165 170 175

Ser Asp Asp Glu Leu Gly Asn Leu Asp Asp Asp Xaa Ser Phe Phe Arg  
180 185 190

Glu Val Trp Met Met Glu Glu Phe Ala Gly Ser  
195 200

<210> 979

<211> 141

<212> PRT

<213> Homo sapiens

<400> 979

Ala Ala Gly Phe Gly Asp Phe Cys Leu Ile Ala Met Ser Gly Arg Gly



1                      5                      10                      15  
Lys Gln Gly Gly Lys Ala Arg Ala Lys Ala Lys Ser Arg Ser Ser Arg  
20                      25                      30  
Ala Gly Leu Gln Phe Pro Val Gly Arg Val His Arg Leu Leu Arg Lys  
35                      40                      45  
Gly Asn Tyr Ala Glu Arg Val Gly Ala Gly Ala Pro Val Tyr Leu Ala  
50                      55                      60  
Ala Val Leu Glu Tyr Leu Thr Ala Glu Ile Leu Glu Leu Ala Gly Asn  
65                      70                      75                      80  
Ala Ala Arg Asp Asn Lys Lys Thr Arg Ile Ile Pro Arg His Leu Gln  
85                      90                      95  
Leu Ala Ile Arg Asn Asp Glu Glu Leu Asn Lys Leu Leu Gly Arg Val  
100                      105                      110  
Thr Ile Ala Gln Gly Gly Val Leu Pro Asn Ile Gln Ala Val Leu Leu  
115                      120                      125  
Pro Lys Lys Thr Glu Ser His His Lys Ala Lys Gly Lys  
130                      135                      140

&lt;210&gt; 980

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (35)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 980

Gly Glu Leu Ser Phe Phe Gly Arg His Pro Asp Val Pro Arg Glu Ala  
1                      5                      10                      15  
Ala Gly Ala His Gly Asp Arg His Ala Ser Pro Trp Ala Phe Phe Leu  
20                      25                      30  
Glu Arg Xaa Lys Ala Pro Arg Leu Thr Thr Arg Ser His Arg Leu Leu  
35                      40                      45  
Ser Asp Val Phe Ala Ala Ser Trp Thr Pro His Arg Met Leu Thr Thr  
50                      55                      60

Lys Thr Leu Gln Pro Trp Val Ala Arg Leu Asp Glu Met Glu Arg Gly  
 65 70 75 80

Leu Phe Gln Thr Gly Gln Lys Gly Leu Asn Asp Phe Gln Cys Trp Glu  
 85 90 95

Lys Gly Gln Ala Ser Gln Ile Thr Ala Ser Asn Leu Val Gln Asn  
 100 105 110

<210> 981

<211> 167

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (162)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 981

Trp Arg Met Gly Phe Ser Arg Val Leu Cys Phe Thr Asn Ser Arg Glu  
 1 5 10 15

Asn Ser His Arg Leu Phe Leu Leu Val Gln Ala Phe Gly Gly Val Asp  
 20 25 30

Val Ala Glu Phe Ser Ser Arg Tyr Gly Pro Gly Gln Arg Arg Met Ile  
 35 40 45

Leu Lys Gln Phe Glu Gln Gly Lys Ile Gln Leu Leu Ile Ser Thr Asp  
 50 55 60

Ala Thr Ala Arg Gly Xaa Asp Val Gln Gly Val Glu Leu Val Val Asn  
 65 70 75 80

Tyr Asp Ala Pro Gln Tyr Leu Arg Thr Tyr Val His Arg Val Gly Arg  
 85 90 95

Thr Ala Arg Ala Gly Lys Thr Gly Gln Ala Phe Thr Leu Leu Leu Lys  
 100 105 110

Val Gln Glu Arg Arg Phe Leu Arg Met Leu Thr Glu Ala Gly Ala Pro  
 115 120 125

Glu Leu Gln Arg His Glu Leu Ser Ser Lys Leu Leu Gln Pro Leu Val  
130 135 140

Pro Arg Tyr Glu Glu Ala Leu Ser Gln Leu Glu Glu Ser Val Lys Glu  
145 150 155 160

Glu Xaa Lys Gln Arg Ala Ala  
165

<210> 982  
<211> 108  
<212> PRT  
<213> Homo sapiens

<400> 982  
Ala Asn Glu Pro Gln Phe Leu Ala Val Tyr Lys Lys Ser Leu Asn Ala  
1 5 10 15

Asn Glu Glu Phe Lys Gly Leu Phe Lys Glu Met Lys Gly Phe Pro Asn  
20 25 30

Arg Met Ile Tyr Ser Glu Glu Thr Asn Asn Gly Ile Ser Glu Thr His  
35 40 45

Asn Leu Lys Pro Asn Leu Glu Asn Met Leu Cys Thr Lys Thr Thr Ala  
50 55 60

Ser Ala Ser Ser Leu Ile Leu Thr Phe Phe Asn Arg Tyr Leu Leu Asn  
65 70 75 80

Cys Pro Val Lys Arg Cys His Asn Ala Gln Tyr Cys Lys Gln Gln Val  
85 90 95

Cys Ile His Glu Ala Phe Ile His Ser Gly Val Tyr  
100 105

<210> 983  
<211> 150  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (150)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 983

Phe Ser Leu Ser Leu Ser Met Thr Pro Gln Leu Leu Leu Ala Leu Val  
 1 5 10 15  
 Leu Trp Ala Ser Cys Pro Pro Cys Ser Gly Arg Lys Gly Pro Pro Ala  
 20 25 30  
 Ala Leu Thr Leu Pro Arg Val Gln Cys Arg Ala Ser Arg Tyr Pro Ile  
 35 40 45  
 Ala Val Asp Cys Ser Trp Thr Leu Pro Pro Ala Pro Asn Ser Thr Ser  
 50 55 60  
 Pro Val Ser Phe Ile Ala Thr Tyr Arg Leu Gly Met Ala Ala Arg Gly  
 65 70 75 80  
 His Ser Trp Pro Cys Leu Gln Gln Thr Pro Thr Ser Thr Ser Cys Thr  
 85 90 95  
 Ile Thr Asp Val Gln Leu Phe Ser Met Ala Pro Tyr Val Leu Asn Val  
 100 105 110  
 Thr Ala Val His Pro Trp Gly Ser Ser Ser Ser Phe Val Pro Phe Ile  
 115 120 125  
 Thr Glu His Ile Ile Lys Pro Asp Pro Pro Glu Gly Val Arg Leu Ser  
 130 135 140  
 Pro Leu Ala Glu Arg Xaa  
 145 150

<210> 984  
 <211> 158  
 <212> PRT  
 <213> Homo sapiens

<400> 984  
 Arg Leu Cys Trp Val Lys Thr Leu Gln His Leu Leu Leu Arg Ser Thr  
 1 5 10 15  
 His Lys Asp Gln Val Gln His Arg Gly Leu Gly Thr Ser Leu Ala Ser  
 20 25 30  
 Gly Pro His Leu Thr Val Arg Gln Gln Leu Pro Ser Pro Ala Met Cys  
 35 40 45  
 Leu Leu Ser Gly Ser Ser Cys Leu Lys Leu Thr Ser Thr Phe Phe Pro  
 50 55 60  
 Asp Gly Gln Val Ala Glu Gly Pro Ala Ile Ser Val Ala Cys Cys His

65                      70                      75                      80  
 Pro Val Pro Pro Leu Ala Ser Leu Ser Phe Ala Gln Lys Thr Asn Asn  
                             85                      90                      95  
 His Thr Tyr Pro Asn Trp Asp Thr Thr Leu Gln Asn Ala Asp Asp Pro  
                             100                      105                      110  
 Phe Trp Arg Lys Leu Ser Leu Glu Leu Ser Glu Leu Pro Gly Lys Gln  
                             115                      120                      125  
 Gly Ile Trp Pro Thr Ser Leu Thr Thr Ala Ala Pro Thr Ser Pro Arg  
                             130                      135                      140  
 Thr Gly Ala Ser Ala Leu Thr Glu Val Gly Arg Pro Lys Thr  
                             145                      150                      155

<210> 985  
 <211> 40  
 <212> PRT  
 <213> Homo sapiens

<400> 985  
 Arg Trp Gly Cys Pro Gly Trp Ser Gln Thr Pro Glu Leu Lys Gln Cys  
   1                      5                      10                      15  
 Ala Arg Leu Gly Phe Pro Lys Cys Trp Asp Tyr Arg Arg Lys Pro Leu  
                             20                      25                      30  
 His Ala Ala Tyr Pro Leu Pro Phe  
                             35                      40

<210> 986  
 <211> 63  
 <212> PRT  
 <213> Homo sapiens

<400> 986  
 Val Phe Gly Ser Phe Ser Cys Ile His Ser Pro Ser Cys His Leu Val  
   1                      5                      10                      15  
 Lys Lys Val Pro Trp Phe Pro Phe Thr Phe Asn His Asp Cys Lys Phe  
                             20                      25                      30  
 Pro Glu Ala Pro Pro Ala Met Gly Asp Cys Glu Ser Ile Lys Pro Leu  
                             35                      40                      45

Ser Phe Ile Asn Tyr Pro Val Ser Gly Ser Phe Leu Ile Ala Val  
 50 55 60

<210> 987

<211> 90

<212> PRT

<213> Homo sapiens

<400> 987

His His Arg Ile Asn Cys Val His Leu Tyr His Cys Phe Thr Ser Leu  
 1 5 10 15

Trp Trp Ile Tyr Met Ala Lys Leu Cys Glu Glu Ile Gly Lys Lys Lys  
 20 25 30

Leu Pro Leu Thr Lys Asp Met Arg Glu Gln Gly Val Lys Ser Asn Pro  
 35 40 45

Cys Asp Ser Ser Leu Ser His Thr Asp Arg Trp Tyr Leu Pro Val Ser  
 50 55 60

Ser Thr Leu Phe Ser Leu Phe Lys Ile Leu Phe His Ala Ser Arg Phe  
 65 70 75 80

Ile Phe Val Leu Ser Thr Ser Leu Phe Leu  
 85 90

<210> 988

<211> 50

<212> PRT

<213> Homo sapiens

<400> 988

Ala Gln Glu Glu Lys Lys Pro Tyr Leu Cys Ser Arg Phe Cys Lys Gly  
 1 5 10 15

Glu Ile Ser Thr Glu Arg Asn His Cys Tyr Thr Ser Ala Lys Thr Gln  
 20 25 30

Gly Leu Gly Asp Leu Phe Leu Phe Ile Cys Phe Gly Tyr Leu Ala Ser  
 35 40 45

Phe Ser  
 50

<210> 989  
<211> 92  
<212> PRT  
<213> Homo sapiens

<400> 989  
Arg Met Lys Arg Ser Arg Arg Trp Ser Arg Tyr Lys Ala Leu Asn Ala  
1 5 10 15  
Gly Arg Thr Ser Lys Arg Ile His Lys Gly Leu Val Val Arg Lys Gly  
20 25 30  
Trp Leu Gly Lys Leu Pro Ser Leu Pro Leu Arg Trp Arg Ala Arg Gly  
35 40 45  
Val Met Thr Leu Met Phe Ile Leu Leu Ala Ala Met Leu Trp Phe Val  
50 55 60  
Ala Ala Pro Val Val Thr Tyr Ile Leu Cys Ala Leu Val Val Leu Leu  
65 70 75 80  
Ala Ala Pro Val Leu Asn Gly Arg Leu Tyr Ala Arg  
85 90

<210> 990  
<211> 87  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (33)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (35)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 990  
Ser Gly Leu Ile Pro Phe Pro Phe Gln Arg Ile Ala Lys Lys Lys Leu  
1 5 10 15  
Thr Val Glu Ala Gly Cys Ser Glu Val Gly Cys Gly Val Gly Gly Thr  
20 25 30  
Xaa Gly Xaa Ala Leu Trp Ala Gly Ala Gly Gly Phe Glu Gly Leu Ser  
35 40 45

Ser Thr Arg Ala Gln Arg Ser Cys Gln Trp Pro Val Ala Leu Pro Pro  
 50 55 60

Phe Pro Glu Arg Gly Ser Arg Gly His Pro Gly Arg Leu Gly Pro Gly  
 65 70 75 80

Pro Pro Ser Ala Leu Ala Ser  
 85

<210> 991

<211> 184

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (151)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 991

Phe Ala Thr Asp Arg Phe Phe Lys Cys Trp His Asn Ala Gln Ser Ser  
 1 5 10 15

Met Arg Glu Gln Pro Ile Phe Thr Thr Arg Ala His Val Phe Gln Ile  
 20 25 30

Asp Pro Asn Thr Lys Lys Asn Trp Met Pro Ala Ser Lys Xaa Ala Val  
 35 40 45

Thr Val Ser Tyr Phe Tyr Asp Val Thr Arg Asn Ser Tyr Arg Ile Ile  
 50 55 60

Ser Val Asp Gly Ala Lys Val Ile Ile Asn Ser Thr Ile Thr Pro Asn  
 65 70 75 80

Met Thr Phe Thr Lys Thr Ser Gln Lys Phe Gly Gln Trp Ala Asp Ser  
 85 90 95

Arg Ala Asn Thr Val Phe Gly Leu Gly Phe Ser Ser Glu Gln Gln Leu  
 100 105 110

Thr Lys Phe Ala Glu Lys Phe Gln Glu Val Lys Glu Ala Ala Lys Ile  
 115 120 125



Ala Lys Asp Lys Thr Gln Glu Lys Ile Glu Thr Ser Ser Asn His Ser  
130 135 140

Gln Ala Ser Ser Val Asn Xaa Thr Asp Asp Glu Lys Ala Ser His Ala  
145 150 155 160

Gly Pro Ala Asn Thr His Leu Lys Ser Glu Asn Asp Lys Leu Lys Ile  
165 170 175

Ala Leu Thr Gln Ser Ala Pro Thr  
180

<210> 992

<211> 66

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 992

Pro Cys His Leu Gln His Glu Glu Ser Leu Ser Gly Val Lys Val Asn  
1 5 10 15

Glu Thr Asn Arg Asp Xaa Arg Pro Gly Glu Ile Leu Val Thr Leu Leu  
20 25 30

Glu Ser Cys Gln Ser Tyr Thr Gly Val Leu Leu Ile Gln Asn Asn Ser  
35 40 45

Asn Asn Pro Ser Val Ser Tyr Val Tyr Ala Asn Phe Asn Lys Lys Lys  
50 55 60

Leu Asp  
65

<210> 993

<211> 434

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (13)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (25)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (95)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (99)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 993

Ser Gly Pro Gly Val Gln Trp Val Gln Pro Ala Cys Xaa Leu Arg Pro  
 1 5 10 15

Asp Arg Gly Ala Pro Thr Asp Gly Xaa Gly Gly Ala Leu Gln Ala Glu  
 20 25 30

Thr Pro Ser Ser Ala Glu Ser Gln Glu Phe Trp Glu Val Lys Arg Lys  
 35 40 45

Glu Lys Leu Ile Thr Asn Gly Thr Ile Phe Cys Phe Glu Met Glu Pro  
 50 55 60

Ala Val Ser Glu Pro Met Arg Asp Gln Val Ala Arg Thr His Leu Thr  
 65 70 75 80

Glu Asp Thr Pro Lys Val Asn Ala Asp Ile Glu Lys Val Asn Xaa Asn  
 85 90 95

Gln Ala Xaa Arg Cys Thr Val Ile Gly Gly Ser Gly Phe Leu Gly Gln  
 100 105 110

His Met Val Glu Gln Leu Leu Ala Arg Gly Tyr Ala Val Asn Val Phe  
 115 120 125

Asp Ile Gln Gln Gly Phe Asp Asn Pro Gln Val Arg Phe Phe Leu Gly  
 130 135 140

Asp Leu Cys Ser Arg Gln Asp Leu Tyr Pro Ala Leu Lys Gly Val Asn  
 145 150 155 160

Thr Val Phe His Cys Ala Ser Pro Pro Pro Ser Ser Asn Asn Lys Glu  
 165 170 175

Leu Phe Tyr Arg Val Asn Tyr Ile Gly Thr Lys Asn Val Ile Glu Thr

180 185 190  
Cys Lys Glu Ala Gly Val Gln Lys Leu Ile Leu Thr Ser Ser Ala Ser  
195 200 205  
Val Ile Phe Glu Gly Val Asp Ile Lys Asn Gly Thr Glu Asp Leu Pro  
210 215 220  
Tyr Ala Met Lys Pro Ile Asp Tyr Tyr Thr Glu Thr Lys Ile Leu Gln  
225 230 235 240  
Glu Arg Ala Val Leu Gly Ala Asn Asp Pro Glu Lys Asn Phe Leu Thr  
245 250 255  
Thr Ala Ile Arg Pro His Gly Ile Phe Gly Pro Arg Asp Pro Gln Leu  
260 265 270  
Val Pro Ile Leu Ile Glu Ala Ala Arg Asn Gly Lys Met Lys Phe Val  
275 280 285  
Ile Gly Asn Gly Lys Asn Leu Val Asp Phe Thr Phe Val Glu Asn Val  
290 295 300  
Val His Gly His Ile Leu Ala Ala Glu Gln Leu Ser Arg Asp Ser Thr  
305 310 315 320  
Leu Gly Gly Lys Ala Phe His Ile Thr Asn Asp Glu Pro Ile Pro Phe  
325 330 335  
Trp Thr Phe Leu Ser Arg Ile Leu Thr Gly Leu Asn Tyr Glu Ala Pro  
340 345 350  
Lys Tyr His Ile Pro Tyr Trp Val Ala Tyr Tyr Leu Ala Leu Leu Leu  
355 360 365  
Ser Leu Leu Val Met Val Ile Ser Pro Val Ile Gln Leu Gln Pro Thr  
370 375 380  
Phe Thr Pro Met Arg Val Ala Leu Ala Gly Thr Phe His Tyr Tyr Ser  
385 390 395 400  
Cys Glu Arg Ala Lys Lys Ala Met Gly Tyr Gln Pro Leu Val Thr Met  
405 410 415  
Asp Asp Ala Met Glu Arg Thr Val Gln Ser Phe Arg His Leu Arg Arg  
420 425 430  
Val Lys

<210> 994  
<211> 29  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (17)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 994  
Met Leu His Gly Ile Thr Ser Phe Ile Leu Tyr Lys Ser Ile Met Cys  
1 5 10 15

Xaa Glu Leu Lys Thr Ser Leu Gly Asn Ile Asn Ser Ser  
20 25

<210> 995  
<211> 175  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (27)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (52)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (75)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (77)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 995  
Arg Gly Leu Val Arg Gly Ala Met Val Gly Gly Met Gln Glu Arg Glu  
1 5 10 15

Pro Ala Leu Thr Val Lys Leu Arg Leu Phe Xaa Pro Gln Pro Ser Thr  
20 25 30

Pro Ala Gln Thr Gly Ser Trp Ala Leu Phe Cys Leu Ser Gln Pro His  
35 40 45

Ser Lys Pro Xaa Pro Pro Ala Pro Pro Tyr Cys Asn Ser Pro His Ser  
50 55 60

His Thr Arg Ser Pro Leu Pro Pro Thr Tyr Xaa Arg Xaa Phe Ser Pro  
65 70 75 80

Leu Pro Ser Gln Leu Pro Ala Pro Ser Cys Phe Thr Lys Gly Glu Val  
85 90 95

Pro Gly His Leu Arg Val Ser Leu Cys Gly Ala Gln Asn Leu Gln Gly  
100 105 110

Pro Leu Ser Met Pro Leu Val Pro Trp Thr Val Ser Leu Val His Leu  
115 120 125

Leu Ser Pro Ser Ile Leu Ser Gln Ser Thr Asp Phe Ser His Ser Ala  
130 135 140

Val Ser Val Gln Pro Tyr Pro Arg Asp Leu Asp Ala Trp Pro Pro Asn  
145 150 155 160

Leu Ala Leu Gly Tyr Pro Asp Ala Asn Gln Thr Pro Pro Ser Ser  
165 170 175

<210> 996

<211> 218

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (118)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (172)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (173)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (182)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 996

Thr Leu Ser His Gln Val Thr Gln Gln Met Asn Met Leu Ile Gly Val  
1 5 10 15

Glu Leu Gln Arg Leu Leu Val Cys Gln Val Phe Leu Phe Ile Gln Leu  
20 25 30

Asp Thr Met His Ala Gln Lys Leu Leu Xaa Lys Met Gly Gly Ser Ala  
35 40 45

Pro Pro Asp Ser Ser Trp Arg Gly Ser Leu Lys Val Pro Tyr Asn Val  
50 55 60

Gly Pro Gly Phe Thr Gly Asn Phe Ser Thr Gln Lys Val Lys Met His  
65 70 75 80

Ile His Ser Thr Asn Glu Val Thr Arg Ile Tyr Asn Val Ile Gly Thr  
85 90 95

Leu Arg Gly Ala Val Glu Pro Asp Arg Tyr Val Ile Leu Gly Gly His  
100 105 110

Arg Asp Ser Trp Val Xaa Gly Gly Ile Asp Pro Gln Ser Gly Ala Ala  
115 120 125

Val Val His Glu Ile Val Arg Ser Phe Gly Thr Leu Lys Lys Glu Gly  
130 135 140

Trp Arg Pro Arg Arg Thr Ile Leu Phe Ala Ser Trp Asp Ala Glu Glu  
145 150 155 160

Phe Gly Leu Leu Gly Ser Thr Glu Trp Ala Glu Xaa Xaa Ser Arg Leu  
165 170 175

Leu Gln Glu Arg Gly Xaa Gly Phe Ile Leu Asn Ala Asp Ser Ser Ile  
180 185 190

Gly Arg Lys Leu His Ser Glu Glu Leu Asp Cys Thr Pro Leu Asp Val  
195 200 205

Gln Leu Gly Thr Gln Pro Tyr Gln Arg Ala  
210 215

<210> 997  
<211> 119  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (8)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 997  
Gly Arg Arg Gln Pro Thr Pro Xaa Thr Ser Pro Glu Pro Pro Arg Ser  
1 5 10 15  
Ser Pro Arg Gln Thr Pro Ala Pro Gly Pro Ala Arg Glu Lys Ser Ala  
20 25 30  
Gly Lys Arg Gly Pro Asp Arg Gly Ser Pro Glu Tyr Arg Gln Arg Arg  
35 40 45  
Glu Arg Asn Asn Ile Ala Val Arg Lys Ser Arg Asp Lys Ala Lys Arg  
50 55 60  
Arg Asn Gln Glu Met Gln Gln Lys Leu Val Glu Leu Ser Ala Glu Asn  
65 70 75 80  
Glu Lys Leu His Gln Arg Val Glu Gln Leu Thr Arg Asp Leu Ala Gly  
85 90 95  
Leu Arg Gln Phe Phe Lys Gln Leu Pro Ser Pro Pro Phe Leu Pro Ala  
100 105 110  
Ala Gly Thr Ala Asp Cys Arg  
115

<210> 998  
<211> 101  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (18)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 998

Leu	Val	Asn	Gly	Ala	Arg	Lys	Val	Thr	Gly	Gln	Arg	Thr	Gln	Met	Tyr
1				5					10					15	

Arg	Xaa	Asp	Met	Xaa	Asn	Asn	Lys	Asn	Gly	Val	Asp	Gln	Glu	Ile	Ile
		20						25					30		

Phe	Pro	Pro	Ile	Lys	Thr	Asp	Val	Ile	Thr	Met	Asp	Pro	Lys	Asp	Asn
		35					40						45		

Cys	Ser	Lys	Asp	Ala	Asn	Asp	Thr	Leu	Leu	Leu	Gln	Leu	Thr	Asn	Thr
	50					55					60				

Ser	Ala	Tyr	Tyr	Met	Tyr	Leu	Leu	Leu	Leu	Leu	Lys	Ser	Val	Val	Tyr
65					70					75					80

Phe	Ala	Ile	Ile	Thr	Cys	Cys	Leu	Leu	Arg	Arg	Thr	Ala	Phe	Cys	Cys
				85					90					95	

Asn	Gly	Glu	Lys	Ser
				100

&lt;210&gt; 999

&lt;211&gt; 68

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (67)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 999

Gly	Thr	Ser	Ala	Gly	Val	Asn	Pro	Tyr	Lys	Cys	Ser	Gln	Cys	Glu	Lys
1				5					10					15	

Ser	Phe	Ser	Gly	Lys	Leu	Arg	Leu	Leu	Val	His	Gln	Arg	Met	His	Thr
			20					25					30		

Arg	Glu	Lys	Pro	Tyr	Glu	Cys	Ser	Glu	Cys	Gly	Lys	Ala	Phe	Ile	Arg
		35					40					45			

Asn	Ser	Gln	Leu	Ile	Val	His	Gln	Arg	Thr	His	Ser	Gly	Glu	Lys	Pro
	50						55					60			



Tyr Gly Xaa Gln  
65

<210> 1000

<211> 320

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (19)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1000

Arg	Pro	Cys	Glu	Arg	Thr	Val	Arg	Pro	Arg	His	Ser	Gly	His	Ser	Gly
1				5					10					15	
Pro	Asn	Xaa	Cys	Cys	Ser	Cys	Arg	Cys	Ser	Ser	Cys	Thr	Gly	Glu	Ala
			20					25					30		
Ala	Ile	Ala	Gly	Arg	Leu	Arg	Thr	Ala	Ala	Ala	Gly	Ala	Arg	Thr	Ala
	35					40						45			
Gly	Ala	Ala	Leu	Arg	His	Leu	Gly	Ala	Gly	Gln	Arg	Glu	Leu	Gly	Pro
	50					55					60				
Arg	Leu	Glu	Glu	Thr	Lys	Trp	Glu	Val	Cys	Gln	Lys	Ser	Gly	Glu	Ile
	65				70					75				80	
Ser	Leu	Leu	Lys	Gln	Gln	Leu	Lys	Glu	Ser	Gln	Ala	Glu	Leu	Val	Gln
				85				90						95	
Lys	Gly	Ser	Glu	Leu	Val	Ala	Leu	Arg	Val	Ala	Leu	Arg	Glu	Ala	Arg
			100					105					110		
Ala	Thr	Leu	Arg	Val	Ser	Glu	Gly	Arg	Ala	Arg	Gly	Leu	Gln	Glu	Ala
		115					120					125			
Ala	Arg	Ala	Arg	Glu	Leu	Glu	Leu	Glu	Ala	Cys	Ser	Gln	Glu	Leu	Gln
	130					135					140				
Arg	His	Arg	Gln	Glu	Ala	Glu	Gln	Leu	Arg	Glu	Lys	Ala	Gly	Gln	Leu
	145				150					155				160	
Asp	Ala	Glu	Ala	Ala	Gly	Leu	Arg	Glu	Pro	Pro	Val	Pro	Pro	Ala	Thr
			165					170						175	
Ala	Asp	Pro	Phe	Leu	Leu	Ala	Glu	Ser	Asp	Glu	Ala	Lys	Val	Gln	Arg
			180					185					190		

Ala Ala Ala Gly Val Gly Gly Ser Leu Arg Ala Gln Val Glu Arg Leu  
 195 200 205

Arg Val Glu Leu Gln Arg Glu Arg Arg Arg Gly Glu Glu Gln Arg Asp  
 210 215 220

Ser Phe Glu Gly Glu Arg Leu Ala Trp Gln Ala Glu Lys Glu Gln Val  
 225 230 235 240

Ile Arg Tyr Gln Lys Gln Leu Gln His Asn Tyr Ile Gln Met Tyr Arg  
 245 250 255

Arg Asn Arg Gln Leu Glu Gln Glu Leu Gln Gln Leu Ser Leu Glu Leu  
 260 265 270

Glu Ala Arg Glu Leu Ala Asp Leu Gly Leu Ala Glu Gln Pro Pro Ala  
 275 280 285

Ser Ala Trp Arg Arg Ser Leu Leu Leu Arg Ser Arg Ala Leu Ser Asn  
 290 295 300

Gln Leu Cys Arg Glu Leu Cys Gln Arg Gly Ser Ser Cys Arg Ser Thr  
 305 310 315 320

<210> 1001

<211> 70

<212> PRT

<213> Homo sapiens

<400> 1001

Gly Leu Cys Phe Leu Pro Trp Val Gly Phe Ser Ser Met His Val Gly  
 1 5 10 15

Cys Phe Ser Leu Asn Leu Ile Val Cys Leu Val Cys Phe Pro Pro Phe  
 20 25 30

Pro Phe Leu Phe Lys Leu Ile His Arg Thr Gln Lys Phe Thr Arg Tyr  
 35 40 45

Glu His Leu Lys Lys Trp Asn Arg Glu Asn Gly Thr Ser His Val Ile  
 50 55 60

Lys Ile Asn Ile Val Leu  
 65 70

<210> 1002  
<211> 79  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (31)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (69)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1002  
Ile Phe Tyr Thr Ile Leu Gln Trp Asp Arg Asn Cys Leu Thr Pro Ala  
1 5 10 15  
Gly Val Thr Pro His Glu Pro Gln Gly Ser Ser Val Pro Lys Xaa Lys  
20 25 30  
Lys Gly Asn Arg Trp Pro Pro Pro Leu Pro His Ser Pro Gly Thr Gln  
35 40 45  
Asp Cys Ser Leu Lys Val Phe Glu Pro Pro Ser Phe Pro Phe Leu Leu  
50 55 60  
Gly Gly Gln Gly Xaa Leu Asn Ser Arg Ala Leu Pro Val Leu Pro  
65 70 75

<210> 1003  
<211> 158  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (90)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1003  
Ile Arg His Glu Gly Thr Leu Asn Gln Pro Leu Thr Lys Leu Asp Arg  
1 5 10 15  
Ser Ser Glu Glu Pro Leu Gly Val Leu Val Asn Pro Asn Met Tyr Gln  
20 25 30

Ser Pro Pro Gln Trp Val Asp His Thr Gly Ala Ala Ser Gln Lys Lys  
35 40 45

Ala Phe Arg Ser Ser Gly Phe Gly Leu Glu Phe Asn Ser Phe Gln His  
50 55 60

Gln Leu Arg Ile Gln Asp Gln Glu Phe Gln Glu Gly Phe Asp Gly Gly  
65 70 75 80

Trp Cys Leu Ser Val His Gln Pro Trp Xaa Ser Leu Leu Val Arg Gly  
85 90 95

Ile Lys Arg Val Glu Gly Arg Ser Trp Tyr Thr Pro His Arg Gly Arg  
100 105 110

Leu Trp Ile Ala Ala Thr Ala Lys Lys Pro Ser Pro Gln Glu Val Ser  
115 120 125

Glu Leu Gln Ala Thr Tyr Arg Leu Leu Arg Gly Lys Asp Val Glu Phe  
130 135 140

Pro Asn Asp Tyr Pro Ser Val Val Phe Trp Ala Val Trp Thr  
145 150 155

<210> 1004

<211> 64

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (44)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (49)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1004

Ala Gly Thr Leu Thr Pro Ala Tyr Cys Leu Lys Thr Ser Pro Thr Gly  
1 5 10 15

Xaa Phe Met Val Ser Tyr Pro Leu Pro His Ile Phe Leu Ala Thr Arg  
20 25 30

Gln Glu Thr Tyr Leu Trp His Leu Gln Ile Ser Xaa Ile Xaa Phe Trp  
35 40 45

Xaa Phe Pro Cys Leu Ala Ile Cys Phe Ile Glu Trp Val Ser Glu Thr  
50 55 60

&lt;210&gt; 1005

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (44)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1005

Ser Ser Lys Phe Arg Ala Ile Asn Pro Ile Ser Val Ile Lys Ser Ser  
1 5 10 15

Thr Asp Asn Asn Glu Gln Leu Leu Lys Ser Asn Ile Leu Ser Leu Phe  
20 25 30

Thr Asn Val Ser Leu Ser Ile Gly Thr Phe Leu Xaa Tyr Leu Phe Ala  
35 40 45

Cys His Tyr Asp Gln Lys Lys Gln Lys Ala Thr Gln Lys Gly Gln Pro  
50 55 60

His Ser Lys  
65

&lt;210&gt; 1006

&lt;211&gt; 223

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (33)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (43)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1006

Leu Asp Lys Lys Arg Lys Lys Asp Met Leu Asn Ser Lys Thr Lys Thr  
1 5 10 15

Gln Tyr Phe His Gln Glu Lys Trp Ile Tyr Val His Lys Gly Ser Thr  
20 25 30

Xaa Glu Arg His Gly Tyr Cys Thr Leu Gly Xaa Ala Phe Asn Arg Leu  
35 40 45

Asp Phe Ser Thr Ala Ile Leu Asp Ser Arg Arg Phe Asn Tyr Val Val  
50 55 60

Arg Leu Leu Glu Leu Ile Ala Lys Ser Gln Leu Thr Ser Leu Ser Gly  
65 70 75 80

Ile Ala Gln Lys Asn Phe Met Asn Ile Leu Glu Lys Val Val Leu Lys  
85 90 95

Val Leu Glu Asp Gln Gln Asn Ile Arg Leu Ile Arg Glu Leu Leu Gln  
100 105 110

Thr Leu Tyr Thr Ser Leu Cys Thr Leu Val Gln Arg Val Gly Lys Ser  
115 120 125

Val Leu Val Gly Asn Ile Asn Met Trp Val Tyr Arg Met Glu Thr Ile  
130 135 140

Leu His Trp Gln Gln Gln Leu Asn Asn Ile Gln Ile Thr Arg Pro Ala  
145 150 155 160

Phe Lys Gly Leu Thr Phe Thr Asp Leu Pro Leu Cys Leu Gln Leu Asn  
165 170 175

Ile Met Gln Arg Leu Ser Asp Gly Arg Asp Leu Val Ser Leu Gly Gln  
180 185 190

Leu Pro Pro Thr Cys Thr Cys Ser Ala Lys Thr Gly Cys Cys Gly Arg  
195 200 205

Asn Ser Ala Ser Thr Thr Ser Pro Ser Gly Arg Ser Ala Asn Asp  
210 215 220

<210> 1007  
<211> 152  
<212> PRT  
<213> Homo sapiens

<400> 1007  
Phe Gly Thr Ser Phe Cys Trp Cys Tyr Phe Gln Phe Tyr Phe Gln Cys  
1 5 10 15  
His Asn Arg Val Ile Phe Lys Gln Leu Leu Gln Ala Lys Ala Leu Gln  
20 25 30  
Phe Leu Gln Ile Asp Ser Cys Arg Leu Gly Ser Val Asn Glu Asn Leu  
35 40 45  
Ser Val Leu Leu Met Ala Lys Lys Phe Glu Ile Pro Val Cys Pro His  
50 55 60  
Ala Gly Gly Val Gly Leu Cys Glu Leu Val Gln His Leu Ile Ile Phe  
65 70 75 80  
Asp Tyr Ile Ser Val Ser Ala Ser Leu Glu Asn Arg Val Cys Glu Tyr  
85 90 95  
Val Asp His Leu His Glu His Phe Lys Tyr Pro Val Met Ile Gln Arg  
100 105 110  
Ala Ser Tyr Met Pro Pro Lys Asp Pro Gly Tyr Ser Thr Glu Met Lys  
115 120 125  
Glu Glu Ser Val Lys Lys His Gln Tyr Pro Asp Gly Glu Val Trp Lys  
130 135 140  
Lys Leu Leu Pro Ala Gln Glu Asn  
145 150

<210> 1008  
<211> 69  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1008

Arg Glu Glu Ile Met Lys Gly Arg Glu Tyr Gln Glu Ala Gly Xaa Trp  
1 5 10 15

Gly Pro Ser Gln Arg Leu Pro Asn Thr Gly Tyr Ser Leu Ala Pro Asp  
20 25 30

Asp Ser Cys Ser Phe Gln Met Gln Asn Ala Pro Ser Gln Asp Leu Gln  
35 40 45

Lys Ser Tyr Pro Ile Ile Gly Leu Ala Gln Ser Ser Glu Pro Tyr His  
50 55 60

Leu Lys Phe Gln Val  
65

<210> 1009

<211> 87

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1009

Val Ile Val Asn Val Leu Asn Tyr Gln Leu Glu Gly Ile Phe Val Leu  
1 5 10 15

Lys Val Asp Ile Glu Glu Pro Lys Trp Met Met Gly Phe Gly Ala Ser  
20 25 30

Ser Glu Ser Met Phe Pro Leu Lys Tyr Phe Pro Lys Gln Trp Tyr Thr  
35 40 45

Trp Leu Phe Tyr Tyr Glu Ile Cys Ile Cys Xaa Val Phe Leu Cys Glu  
50 55 60

Gln Cys Phe Ser Leu Ser Val Thr Ile Cys Lys Gly Lys Ser Thr Asn  
65 70 75 80

Ile Asp Tyr Ile Ala Gln Asn  
85



&lt;210&gt; 1010

&lt;211&gt; 164

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1010

Asp His Pro Ala Glu Glu Leu Gly Gln Ser Ile Cys Ile Cys His Pro  
1 5 10 15

Arg Thr Leu Thr Met Lys Thr Leu Leu Leu Leu Ala Val Ile Met Ile  
20 25 30

Phe Gly Leu Leu Gln Ala His Gly Asn Leu Val Asn Phe His Arg Met  
35 40 45

Ile Lys Leu Thr Thr Gly Lys Glu Ala Ala Leu Ser Tyr Gly Phe Tyr  
50 55 60

Gly Cys His Cys Gly Val Gly Gly Arg Gly Ser Pro Lys Asp Ala Thr  
65 70 75 80

Asp Arg Cys Cys Val Thr His Asp Cys Cys Tyr Lys Arg Leu Glu Lys  
85 90 95

Arg Gly Cys Gly Thr Lys Phe Leu Ser Tyr Lys Phe Ser Asn Ser Gly  
100 105 110

Ser Arg Ile Thr Cys Ala Lys Gln Asp Ser Cys Arg Ser Gln Leu Cys  
115 120 125

Glu Cys Asp Lys Ala Ala Ala Thr Cys Phe Ala Arg Asn Lys Thr Thr  
130 135 140

Tyr Asn Lys Lys Tyr Gln Tyr Tyr Ser Asn Lys His Cys Arg Gly Ser  
145 150 155 160

Thr Pro Arg Cys

&lt;210&gt; 1011

&lt;211&gt; 113

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (102)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (106)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (111)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1011

Pro Thr Arg Pro Arg Arg Ala Ala Phe Pro Val Trp Val Pro Glu Arg  
1 5 10 15

Thr Ala Leu Leu Thr Cys Pro Leu Gly Ala Ala Pro Gly Ser Ser Arg  
20 25 30

Glu Ala Pro Gly Ile Ala Gly Pro Pro Asn Ser Thr Ala Met Ser Lys  
35 40 45

Leu Gly Lys Phe Phe Lys Gly Gly Gly Ser Ser Lys Ser Arg Ala Ala  
50 55 60

Pro Ser Pro Gln Glu Ala Leu Val Arg Leu Arg Glu Thr Glu Glu Met  
65 70 75 80

Leu Gly Lys Lys Gln Glu Tyr Leu Glu Asn Arg Ile Gln Arg Glu Ile  
85 90 95

Ala Leu Ala Lys Lys Xaa Gly Thr Gln Xaa Lys Arg Gly Ile Xaa Thr  
100 105 110

Lys

&lt;210&gt; 1012

&lt;211&gt; 79

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1012

Leu Thr Asp Leu Pro Cys Asn Lys Ile Val Phe Cys Glu Lys Gln Glu  
1 5 10 15

Met Asn Asn Asn Ser Val Gly Thr Pro Leu Gln Ile Ser Gln Glu Ile  
20 25 30

Gln Lys Asn Cys Glu Gln Val Ala Gly Phe Thr Ile Leu Gln Asp Thr  
35 40 45

Ala Ser Tyr Ser Lys Phe Leu Gln Asp Asn Asp Ala Gln Leu Phe Thr  
50 55 60

Tyr Leu Cys Leu Asn Ile Pro Ile Ser Leu Thr Phe Ile Leu Trp  
65 70 75

<210> 1013

<211> 54

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1013

Gln Asp Arg Glu Gly Phe Gly Ser Gly Gln Ala Gly Asp Gly Tyr Glu  
1 5 10 15

His Leu Ser Phe Glu Thr Cys Arg Gly Gly Asn Glu Gly Arg Gly Pro  
20 25 30

Cys Val Glu Val Phe Ile Gln Glu Ala Val Val Pro Leu Gly Leu Asn  
35 40 45

Ile Ala Ser Xaa Arg Gln  
50

<210> 1014

<211> 95

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (45)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1014

Ala Gly Asp Leu Arg Ala Gly Ser Thr Leu Lys Arg Phe Gly Phe Pro

1                      5                      10                      15  
 Arg Pro Gly Trp Gly Glu Arg Ala Gly Cys Pro Leu Asp Ser Pro Pro  
                     20                      25                      30  
 Pro His Leu Met Ser Arg Pro Ser Ala Pro Trp Ser Xaa Ala Ile Met  
                     35                      40                      45  
 Pro Pro Trp Xaa Gly Ala Lys Asp Ile Glu Gly Leu Leu Gly Ala Gly  
                     50                      55                      60  
 Gly Gly Arg Asn Leu Val Ala His Ser Pro Leu Thr Ser His Pro Ala  
                     65                      70                      75                      80  
 Ala Pro Thr Leu Met Pro Ala Val Asn Tyr Ala Pro Leu Asp Leu  
                     85                      90                      95

&lt;210&gt; 1015

&lt;211&gt; 132

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (131)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1015

Gln Lys Arg Ser Glu Asn Ile Lys Gln Val Glu Val Trp Ser Ile Leu  
                     1                      5                      10                      15  
 Ser Lys Met Asn Ile Ser Gly Ser Ser Cys Gly Ser Pro Asn Ser Ala  
                     20                      25                      30  
 Asp Thr Ser Ser Asp Phe Lys Asp Leu Trp Thr Lys Leu Lys Glu Cys  
                     35                      40                      45  
 His Asp Arg Glu Val Gln Gly Leu Gln Val Lys Val Thr Lys Leu Lys  
                     50                      55                      60  
 Gln Glu Arg Ile Leu Asp Ala Gln Arg Leu Glu Glu Phe Phe Thr Lys  
                     65                      70                      75                      80  
 Asn Gln Gln Leu Arg Glu Gln Gln Lys Val Leu His Glu Thr Ile Lys  
                     85                      90                      95  
 Val Leu Glu Asp Arg Leu Arg Ala Gly Leu Cys Asp Arg Cys Ala Val  
                     100                      105                      110

Thr Glu Glu His Met Arg Lys Lys Gln Gln Glu Phe Glu Asn Ile Pro  
115 120 125

Ala Ala Xaa Ser  
130

<210> 1016

<211> 43

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (5)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1016

Gly Gly Arg Phe Xaa Val His Arg Thr Pro Ile Thr His Pro Ala Ser  
1 5 10 15

Gln Val Glu Gly Leu Gln Val Arg Arg Cys Ile Pro Gln Gly Leu Met  
20 25 30

Leu Ser Ala Ile Phe Ile Pro Arg Gln Xaa Ser  
35 40

<210> 1017

<211> 188

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (105)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (180)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (188)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1017

Cys Arg Ala Ser Phe Ala Gly Pro Ala Ala Leu Gln Asp Arg Asp Trp  
1 5 10 15

Gln Arg Thr Val Ile Ala Met Asn Gly Ile Glu Val Lys Leu Ser Val  
20 25 30

Lys Phe Asn Ser Arg Glu Phe Ser Leu Lys Arg Met Pro Ser Arg Lys  
35 40 45

Gln Thr Gly Val Phe Gly Val Lys Ile Ala Val Val Thr Lys Arg Glu  
50 55 60

Arg Ser Lys Val Pro Tyr Ile Val Arg Gln Cys Val Glu Glu Ile Glu  
65 70 75 80

Arg Arg Gly Met Glu Glu Val Gly Ile Tyr Arg Val Ser Gly Val Ala  
85 90 95

Thr Asp Ile Gln Ala Leu Lys Ala Xaa Phe Asp Val Asn Asn Lys Asp  
100 105 110

Val Ser Val Met Met Ser Glu Met Asp Val Asn Ala Ile Ala Gly Thr  
115 120 125

Leu Lys Leu Tyr Phe Arg Glu Leu Pro Glu Pro Leu Phe Thr Asp Glu  
130 135 140

Phe Tyr Pro Asn Phe Ala Glu Gly Ile Ala Leu Ser Asp Pro Val Ala  
145 150 155 160

Lys Glu Ser Cys Met Leu Asn Leu Leu Leu Ser Leu Ala Gly Ala Asn  
165 170 175

Leu Ala Ser Xaa Phe Leu Phe Leu Phe Gly Thr Xaa  
180 185

<210> 1018

<211> 424

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (153)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1018

Gly Thr Ser Val Asp Glu Gly Ser Ile Ser Pro Arg Thr Leu Ser Ala  
1 5 10 15

Ile Lys Arg Ala Leu Asp Asp Asp Xaa Asp Val Lys Val Cys Ala Gly  
20 25 30

Asp Asp Val Gln Thr Gly Gly Pro Gly Ala Glu Glu Met Arg Ile Asn  
35 40 45

Ser Ser Thr Glu Asn Ser Asp Glu Gly Leu Lys Val Arg Asp Gly Lys  
50 55 60

Gly Ile Pro Phe Thr Ala Thr Leu Ala Ser Ser Ser Val Asn Ser Ala  
65 70 75 80

Glu Glu His Val Ala Ser Thr Asn Glu Gly Arg Glu Pro Thr Asp Ser  
85 90 95

Val Pro Lys Glu Gln Met Ser Leu Val His Val Gly Thr Glu Ala Phe  
100 105 110

Pro Ile Ser Asp Glu Ser Met Ile Lys Asp Arg Lys Asp Arg Leu Pro  
115 120 125

Leu Glu Ser Ala Val Val Arg His Ser Asp Ala Pro Gly Leu Pro Asn  
130 135 140

Gly Arg Glu Leu Thr Pro Ala Ser Xaa Thr Cys Thr Asn Ser Val Ser  
145 150 155 160

Lys Asn Glu Thr His Ala Glu Val Leu Glu Gln Gln Asn Glu Leu Cys  
165 170 175

Pro Tyr Glu Ser Lys Phe Asp Ser Ser Leu Leu Ser Ser Asp Asp Glu  
180 185 190

Thr Lys Cys Lys Pro Asn Ser Ala Ser Glu Val Ile Gly Pro Val Ser  
195 200 205

Leu Gln Glu Thr Ser Ser Ile Val Ser Val Pro Ser Glu Ala Val Asp  
210 215 220

Asn Val Glu Asn Val Val Ser Phe Asn Ala Lys Glu His Glu Asn Phe

225                      230                      235                      240  
Leu Glu Thr Ile Gln Glu Gln Gln Thr Thr Glu Ser Ala Gly Gln Asp  
                         245                      250                      255  
Leu Ile Ser Ile Pro Lys Ala Val Glu Pro Met Glu Ile Asp Ser Glu  
                         260                      265                      270  
Glu Ser Glu Ser Asp Gly Ser Phe Ile Glu Val Gln Ser Val Ile Ser  
                         275                      280                      285  
Asp Glu Glu Leu Gln Ala Glu Phe Pro Glu Thr Ser Lys Pro Pro Ser  
                         290                      295                      300  
Glu Gln Gly Glu Glu Glu Leu Val Gly Thr Arg Glu Gly Glu Ala Pro  
305                      310                      315                      320  
Ala Glu Ser Glu Ser Leu Leu Arg Asp Asn Ser Glu Arg Asp Asp Val  
                         325                      330                      335  
Asp Gly Glu Pro Gln Glu Ala Glu Lys Asp Ala Glu Asp Ser Leu His  
                         340                      345                      350  
Glu Trp Gln Asp Ile Asn Leu Glu Glu Leu Glu Thr Leu Glu Ser Asn  
                         355                      360                      365  
Leu Leu Ala Gln Gln Asn Ser Leu Lys Ala Gln Lys Gln Gln Gln Glu  
                         370                      375                      380  
Arg Ile Ala Ala Thr Val Thr Gly Gln Met Phe Leu Glu Ser Gln Glu  
385                      390                      395                      400  
Leu Leu Arg Leu Phe Gly Ile Pro Tyr Ile Gln Ala Pro Met Glu Ala  
                         405                      410                      415  
Glu Ala Gln Cys Ala Ser Trp Thr  
                         420

&lt;210&gt; 1019

&lt;211&gt; 90

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (44)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1019



Val Leu Leu Ile Thr Phe Leu Gly Glu Glu Lys Lys Cys Tyr Ser Cys  
1 5 10 15  
Lys Gln Met Tyr Ser Phe Gln Lys Glu Ala Thr Phe Leu Leu Pro Ser  
20 25 30  
Leu Phe Leu Val Ser Ser Pro Arg Leu Ala Ile Xaa Ile Gly Ile Val  
35 40 45  
Met Ala Ser Ile Leu Ser Leu Leu His Pro Tyr Leu Leu Leu Cys Asp  
50 55 60  
Phe Ala Ala Pro Leu Ile Lys Glu Ala Glu Pro Pro Leu Pro Pro Ile  
65 70 75 80  
Gly Ala Gly Phe Glu Ser Asn Arg Met Lys  
85 90

&lt;210&gt; 1020

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (16)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (44)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1020

Thr Arg Pro Ile Arg Pro Pro His Gln Ile Pro Val Asp Thr Leu Xaa  
1 5 10 15  
His Val Ile Asn Gln Thr Gly Gly Tyr Ser Asp Gly Leu Gly Gly Asn  
20 25 30  
Ser Leu Tyr Ser Pro His Asn Leu Asn Ala Asn Xaa Gly Trp Gln Asp  
35 40 45  
Ala Thr Thr Pro Ser Ser Val Thr Ser Pro Thr Glu Gly Pro Gly Ser  
50 55 60  
Val His Ser Asp Thr Ser Asn  
65 70

<210> 1021  
<211> 301  
<212> PRT  
<213> Homo sapiens

<400> 1021

Pro Thr Pro Pro Thr Pro Ile Arg Thr Ala Ala Gln Arg Arg Glu Ile  
1 5 10 15  
Trp Asp Phe Pro Gly Gln Ile Asp Phe Phe Asp Pro Thr Phe Asp Tyr  
20 25 30  
Glu Met Ile Phe Arg Gly Thr Gly Ala Leu Ile Phe Val Ile Asp Ser  
35 40 45  
Gln Asp Asp Tyr Met Glu Ala Leu Ala Arg Leu His Leu Thr Val Thr  
50 55 60  
Arg Ala Tyr Lys Val Asn Thr Asp Ile Asn Phe Glu Val Phe Ile His  
65 70 75 80  
Lys Val Asp Gly Leu Ser Asp Asp His Lys Ile Glu Thr Gln Arg Asp  
85 90 95  
Ile His Gln Arg Ala Asn Asp Asp Leu Ala Asp Ala Gly Leu Glu Lys  
100 105 110  
Ile His Leu Ser Phe Tyr Leu Thr Ser Ile Tyr Asp His Ser Ile Phe  
115 120 125  
Glu Ala Phe Ser Lys Val Val Gln Lys Leu Ile Pro Gln Leu Pro Thr  
130 135 140  
Leu Glu Asn Leu Leu Asn Ile Phe Ile Ser Asn Ser Gly Ile Glu Lys  
145 150 155 160  
Ala Phe Leu Phe Asp Val Val Ser Lys Ile Tyr Ile Ala Thr Asp Ser  
165 170 175  
Thr Pro Val Asp Met Gln Thr Tyr Glu Leu Cys Cys Asp Met Ile Asp  
180 185 190  
Val Val Ile Asp Ile Ser Cys Ile Tyr Gly Leu Lys Glu Asp Gly Ala  
195 200 205  
Gly Thr Pro Tyr Asp Lys Glu Ser Thr Ala Ile Ile Lys Leu Asn Asn  
210 215 220  
Thr Thr Val Leu Tyr Leu Lys Glu Val Thr Lys Phe Leu Ala Leu Val

225                      230                      235                      240  
Cys Phe Val Arg Glu Glu Ser Phe Glu Arg Lys Gly Leu Ile Asp Tyr  
                         245                      250                      255  
Asn Phe His Cys Phe Arg Lys Ala Ile His Glu Val Phe Glu Val Arg  
                         260                      265                      270  
Met Lys Val Val Lys Ser Arg Lys Val Gln Asn Arg Leu Gln Lys Lys  
                         275                      280                      285  
Lys Arg Ala Thr Pro Asn Gly Thr Pro Arg Val Leu Leu  
                         290                      295                      300

<210> 1022

<211> 36

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1022

Thr Ala Asn Arg Gly Ser Ser Ala Ser Xaa Lys Ala Asp Ser Gly Leu  
1                      5                      10                      15

Ala Gln Ser Asp Gly Arg Asp Pro Pro Thr Leu Trp Gly Trp Ser Leu  
20                      25                      30

His Leu Ala Leu  
35

<210> 1023

<211> 173

<212> PRT

<213> Homo sapiens

<400> 1023

Ile Arg Gln Ser Ser Arg Glu Arg Ile Trp Arg Pro Pro Leu Trp Ile  
1                      5                      10                      15

Leu Ala Arg Pro Gly Ser Ala Val Ala Val Arg Ala Gly Phe Pro Thr  
20                      25                      30

Pro Cys Arg Pro Pro Ser Leu Ser Ala Leu Ser Pro Ser Ala Ser Gln

35 40 45

Pro Cys Ser Arg Arg Arg Thr Gly Leu Ser Pro Gly Ser Trp Gly Trp  
50 55 60

Pro Pro Ser Thr Arg Ser Ala Cys Phe Leu Thr Cys Leu Ser Ser Arg  
65 70 75 80

Ser Tyr Arg Leu Gln Ile Gly His Phe Leu Cys Leu Val Ile Leu Val  
85 90 95

Tyr Cys Ala Glu Tyr Ile Asn Glu Ala Ala Ala Met Asn Trp Arg Leu  
100 105 110

Phe Ser Lys Tyr Gln Tyr Phe Asp Ser Arg Gly Met Phe Ile Ser Ile  
115 120 125

Val Phe Ser Ala Pro Leu Leu Val Asn Ala Met Ile Ile Val Val Met  
130 135 140

Trp Val Trp Lys Thr Leu Asn Val Met Thr Asp Leu Lys Asn Ala Gln  
145 150 155 160

Glu Arg Arg Lys Glu Lys Lys Arg Arg Arg Lys Glu Asp  
165 170

<210> 1024

<211> 73

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (36)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1024

Ala Trp Gly Ala Ala Arg Arg Gly Arg Gln Arg Pro Cys Pro Leu Leu  
1 5 10 15

Ala Gly Arg Thr Glu Phe Trp Pro Xaa Cys Glu Gly Lys Ala Glu Ala  
20 25 30

Cys Xaa Gly Xaa Trp Phe Lys Leu Xaa Gly Gln Gly Lys Gly Arg Gly  
35 40 45

Glu Trp Phe Ser Arg Ser Arg Arg Leu Cys Ser Arg Trp Thr Leu Glu  
50 55 60

Asn Lys Gly Glu Ser Ser Arg Glu Gln  
65 70

<210> 1025

<211> 171

<212> PRT

<213> Homo sapiens

<400> 1025

Leu Leu Pro Glu Thr Ala Leu Leu Asn Met Arg Ala Ala Pro Leu Leu  
1 5 10 15

Leu Ala Arg Ala Ala Ser Leu Ser Leu Gly Phe Leu Phe Leu Leu Phe  
20 25 30

Phe Trp Leu Asp Arg Ser Val Leu Ala Lys Glu Leu Lys Phe Val Thr  
35 40 45

Leu Val Phe Arg His Gly Asp Arg Ser Pro Ile Asp Thr Phe Pro Thr  
50 55 60

Asp Pro Ile Lys Glu Ser Ser Trp Pro Gln Gly Phe Gly Gln Leu Thr  
65 70 75 80

Gln Leu Gly Met Glu Gln His Tyr Glu Leu Gly Glu Tyr Ile Arg Lys  
85 90 95

Arg Tyr Arg Lys Phe Leu Asn Glu Ser Tyr Lys His Glu Gln Val Tyr  
100 105 110

Ile Arg Ser Thr Asp Val Asp Arg Thr Leu Met Ser Ala Met Thr Asn  
115 120 125

Leu Ala Ala Leu Phe Pro Pro Glu Gly Val Ser Ile Trp Asn Pro Ile

130

135

140

Leu Leu Trp Gln Pro Ile Pro Val His Thr Val Pro Leu Ser Glu Asp  
 145 150 155 160

Gln Leu Leu Tyr Leu Thr Phe Gln Glu Leu Pro  
 165 170

&lt;210&gt; 1026

&lt;211&gt; 238

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1026

Ala Asn Trp Asp Leu Glu Met Ile Leu Arg Cys Ser Ser Asn Asp Leu  
 1 5 10 15

Glu Leu Leu Gln Ala Glu His Gly Ile Leu Lys Ile Gly Glu Thr Asn  
 20 25 30

Lys Phe Ser Gly Tyr Pro Leu Tyr His Ser Val Tyr Glu Thr Tyr Glu  
 35 40 45

Leu Val Glu Lys Phe Tyr Asp Pro Met Phe Lys Tyr His Leu Thr Val  
 50 55 60

Ala Gln Val Arg Gly Gly Met Val Phe Glu Leu Ala Asn Ser Ile Val  
 65 70 75 80

Leu Pro Phe Asp Cys Arg Asp Tyr Ala Val Val Leu Arg Lys Tyr Ala  
 85 90 95

Asp Lys Ile Tyr Ser Ile Ser Met Lys His Pro Gln Glu Met Lys Thr  
 100 105 110

Tyr Ser Val Ser Phe Asp Ser Leu Phe Ser Ala Val Lys Asn Phe Thr  
 115 120 125

Glu Ile Ala Ser Lys Phe Ser Glu Arg Leu Gln Asp Phe Asp Lys Ser  
 130 135 140

Asn Pro Ile Val Leu Arg Met Met Asn Asp Gln Leu Met Phe Leu Glu  
 145 150 155 160

Arg Ala Phe Ile Asp Pro Leu Gly Leu Pro Asp Arg Pro Phe Tyr Arg  
 165 170 175

His Val Ile Tyr Ala Pro Ser Ser His Asn Lys Tyr Ala Gly Glu Ser  
 180 185 190

Phe Pro Gly Ile Tyr Asp Ala Leu Phe Asp Ile Glu Ser Lys Val Asp  
195 200 205

Pro Ser Lys Ala Trp Gly Glu Val Lys Arg Gln Ile Tyr Val Ala Ala  
210 215 220

Phe Thr Val Gln Ala Ala Ala Glu Thr Leu Ser Glu Val Ala  
225 230 235

<210> 1027

<211> 132

<212> PRT

<213> Homo sapiens

<400> 1027

Gly Pro Thr Thr Thr Lys Phe Ala Ala Arg Arg Gln Gly Val Leu Leu  
1 5 10 15

Ile Thr Met Asn Val Leu Leu Gly Ser Val Val Ile Phe Ala Thr Phe  
20 25 30

Val Thr Leu Cys Asn Ala Ser Cys Tyr Phe Ile Pro Asn Glu Gly Val  
35 40 45

Pro Gly Asp Ser Thr Arg Lys Cys Met Asp Leu Lys Gly Asn Lys His  
50 55 60

Pro Ile Asn Ser Glu Trp Gln Thr Asp Asn Cys Glu Thr Cys Thr Cys  
65 70 75 80

Tyr Glu Thr Glu Ile Ser Cys Cys Thr Leu Val Ser Thr Pro Val Gly  
85 90 95

Tyr Asp Lys Asp Asn Cys Gln Arg Ile Phe Lys Lys Glu Asp Cys Lys  
100 105 110

Tyr Ile Val Val Glu Lys Lys Asp Pro Lys Lys Thr Cys Ser Val Ser  
115 120 125

Glu Trp Ile Ile  
130

<210> 1028

<211> 116

<212> PRT

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (111)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1028

Ser Leu Thr Ser Cys Ile Leu Glu Ile Leu Gln Ser Leu Ser Tyr Ser  
 1 5 10 15

Tyr Gln Asn Ser Cys Arg Pro Leu Thr Pro Asp Ser Pro Cys Leu Gln  
 20 25 30

Cys Pro Pro Ala Cys Arg Gly Gly Xaa Val Thr Ala Thr Leu Ser His  
 35 40 45

Gln Leu Phe Ser Ile Cys Arg Pro Ser Trp Gly Arg Val Pro Ser Ser  
 50 55 60

Cys Ser Pro Cys Leu Trp Glu Lys Ser His Val Leu Phe Ile Ser Pro  
 65 70 75 80

His Cys Thr Leu Ser Leu Thr Leu Asp Tyr Asn Ser Ser Glu Phe Asp  
 85 90 95

Leu His Leu Leu Asp Lys Pro Gly Thr Val Leu Gly Ile Met Xaa Thr  
 100 105 110

Ile Arg Gln Ile  
 115

&lt;210&gt; 1029

&lt;211&gt; 216

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1029

Thr Leu Lys Ser Glu Glu Phe Gln Lys Arg Leu His Pro Tyr Lys Asp  
 1 5 10 15

Phe Ile Ala Thr Leu Gly Lys Leu Ser Gly Leu His Gly Gln Asp Leu  
 20 25 30

Phe Gly Ile Trp Ser Lys Val Tyr Asp Pro Leu Tyr Cys Glu Ser Val



35                      40                      45  
 His Asn Phe Thr Leu Pro Ser Trp Ala Thr Glu Asp Thr Met Thr Lys  
     50                      55                      60  
 Leu Arg Glu Leu Ser Glu Leu Ser Leu Leu Ser Leu Tyr Gly Ile His  
     65                      70                      75                      80  
 Lys Gln Lys Glu Lys Ser Arg Leu Gln Gly Gly Val Leu Val Asn Glu  
                     85                      90                      95  
 Ile Leu Asn His Met Lys Arg Ala Thr Gln Ile Pro Ser Tyr Lys Lys  
                     100                      105                      110  
 Leu Ile Met Tyr Ser Ala His Asp Thr Thr Val Ser Gly Leu Gln Met  
                     115                      120                      125  
 Ala Leu Asp Val Tyr Asn Gly Leu Leu Pro Pro Tyr Ala Ser Cys His  
                     130                      135                      140  
 Leu Thr Glu Leu Tyr Phe Glu Lys Gly Glu Tyr Phe Val Glu Met Tyr  
     145                      150                      155                      160  
 Tyr Arg Asn Glu Thr Gln His Glu Pro Tyr Pro Leu Met Leu Pro Gly  
                     165                      170                      175  
 Cys Ser Pro Ser Cys Pro Leu Glu Arg Phe Ala Glu Leu Val Gly Pro  
                     180                      185                      190  
 Val Ile Pro Gln Asp Trp Ser Thr Glu Cys Met Thr Thr Asn Ser His  
                     195                      200                      205  
 Gln Gly Thr Glu Asp Ser Thr Asp  
     210                      215

&lt;210&gt; 1030

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (10)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1030

His His Ala Trp Leu Ile Phe Leu Ile Xaa Ile Phe Ser Arg Asp Lys  
     1                      5                      10                      15

Val Ala Leu Cys Cys Pro Gly Trp Tyr Gly Thr Pro Val Leu Lys Arg  
                   20                                  25                                  30

Ser Ser Cys Leu Gly Phe Pro Lys Cys  
                   35                                  40

<210> 1031  
 <211> 43  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (7)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1031  
 Pro Gly Trp Ser Gln Ser Xaa Gly Leu Arg Pro Ser Phe His Leu Ile  
   1                                  5                                  10                                  15

Leu Pro Lys Asn Trp Asp Tyr Arg His Glu Gln Leu His Leu Val His  
                   20                                  25                                  30

Met Leu Leu Ile Val Glu Glu Val Lys Gly Gln  
                   35                                  40

<210> 1032  
 <211> 63  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (50)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1032  
 Gln Gly Phe Trp His Gln Leu Glu Ile Leu Trp Met Asp Val Leu Pro  
   1                                  5                                  10                                  15

Trp Ser Phe Tyr Phe Asn Val Leu Thr Thr Tyr Asp Ser Ser Ile Cys  
                   20                                  25                                  30

Ser Ile Asn Tyr Ile His Tyr His Ser Asn Ser His His Leu Ile Cys  
                   35                                  40                                  45

Ile Xaa Tyr Leu Ile Leu Pro Ser Asn Tyr Gly Ile Ser Asp Leu

50

55

60

&lt;210&gt; 1033

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1033

Lys Leu Cys Met Lys Thr Gly Gly Lys His Ser Val Ile Arg Tyr Phe  
1 5 10 15

Ser Asn Ile Lys Thr Thr Lys Thr Asn Asp Lys Asn Val Tyr Phe Tyr  
20 25 30

Thr Pro Ala Tyr Arg Val Ser Phe Arg Asp Val Tyr Glu Tyr Leu Asn  
35 40 45

Leu Leu Ile Ser Val Leu Met Lys Ala Glu Leu Asn Arg Glu Ser  
50 55 60

&lt;210&gt; 1034

&lt;211&gt; 113

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (16)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (100)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (105)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1034

Val Asn Leu Ala Cys Gly Ala Pro Leu Lys Cys Glu Asp Leu Ala Xaa  
1 5 10 15

Trp Leu Lys Ile Lys Leu Gly Phe Val Leu Asn Ile Leu Ala Gly Pro  
20 25 30

Ile Ile His Lys Lys Arg Gly His Ser Pro Phe Ala Arg Leu Leu Asn  
35 40 45  
Glu Leu His Ser Phe Cys Thr Trp Lys Cys Leu Phe Ser His Lys Lys  
50 55 60  
Asn Asn Ser Tyr Asn Leu Ile Ser Leu Val Pro Tyr Gln Gln Lys Lys  
65 70 75 80  
Ser Gln Glu Thr Ile Met Lys Thr Leu Val Ser Ser Leu Gly Asp Tyr  
85 90 95  
Ile Met Leu Xaa Ser Leu Ile Ile Xaa Leu Tyr Leu Asn Lys Tyr Ile  
100 105 110

Phe

&lt;210&gt; 1035

&lt;211&gt; 143

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (23)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (81)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1035

Gly Leu Arg Asp Leu Asp Ser Asn Pro Arg Ala Leu Ser Cys Tyr Ser  
1 5 10 15

Gly Val Ser Thr Val Arg Xaa Gly Pro Gly Ala Leu Ser His His Leu  
20 25 30

Pro Arg Pro Arg Asp His His Pro Leu Lys Arg Gly Pro Ser Pro Leu  
35 40 45

Ser Thr Pro Ser Arg Asp Pro Ala Leu Gly Cys Ser Arg Leu Thr Ala  
50 55 60

His Gly Val Leu Phe Trp Ala Thr Ala Ala Arg Ala Pro Gly Arg Gly  
65 70 75 80

Xaa Gly Thr Pro Glu Asn Thr Pro Leu Phe Met Val Leu Cys Pro Phe  
85 90 95

Ile Arg Arg Leu Leu Lys Asn Trp Ala Val Cys Lys Ala Asn Pro Ala  
100 105 110

Pro Cys Pro Ser Arg Phe Ser Glu Arg Gly Val Pro Trp Glu Trp Ser  
115 120 125

Cys Ser Pro His Gly Ser Thr Thr Phe Pro Val Pro Arg Cys His  
130 135 140

<210> 1036

<211> 122

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (81)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (86)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1036

Glu His Ile Trp Leu Ser Ile Trp Asp Arg Pro Pro Arg Ser Cys Phe  
1 5 10 15

Thr Arg Ile Gln Arg Ala Thr Cys Cys Val Leu Leu Ile Cys Leu Phe  
20 25 30

Leu Gly Ala Asn Ala Val Trp Tyr Gly Ala Val Gly Asp Ser Ala Tyr  
35 40 45

Ser Thr Gly Xaa Val Ser Arg Leu Xaa Pro Leu Ser Val Asp Thr Val  
50 55 60

Ala Val Gly Leu Val Ser Ser Val Val Val Tyr Pro Val Tyr Leu Ala  
65 70 75 80

Xaa Leu Phe Leu Phe Xaa Met Ser Arg Ser Lys Val Ile Asn Thr Leu  
85 90 95

Ala Asp His Arg His Arg Gly Thr Asp Phe Gly Gly Ser Pro Trp Leu  
100 105 110

Leu Ile Ile Asn Cys Val Ser Glu Lys Leu  
115 120

<210> 1037

<211> 29

<212> PRT

<213> Homo sapiens

<400> 1037

Thr Pro Gly Leu Lys Gln Ser Phe Cys Leu Gly Pro Pro Lys Cys Trp  
1 5 10 15

Asp Cys Gly His Glu Leu Leu Cys Pro Ala Ser Met Phe  
20 25

<210> 1038

<211> 104

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (88)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (100)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1038

Glu Thr Ala Arg Gly Thr Gly Arg Asn Gly Leu Ser Ala Leu Asn His  
1 5 10 15

His Lys Pro Trp Leu Arg Lys Gly His Ala Ser Pro Ser Arg Arg Met  
20 25 30

Thr Pro Ile Arg Asp Pro Gln Arg Arg Cys Met Ser Ile Leu Ala Pro  
35 40 45

Arg Ala Val Met Gln Pro Ala Arg Ser Gln Gly Glu Gly Thr Gln Lys  
50 55 60

Pro Gly Met Leu Ala Lys Gly Val Lys Glu Thr Phe Glu Leu Phe Thr  
65 70 75 80

Ala Cys Ser Asn Tyr Val Lys Xaa Thr Pro Leu Asn Lys Ile Trp Ser  
85 90 95

Met Phe Val Xaa Leu Tyr Leu Ile  
100

<210> 1039  
<211> 156  
<212> PRT  
<213> Homo sapiens

<400> 1039  
Gly His Met Glu Leu Ala Met Asp Asn Ser Tyr Ala Phe Asn Gln Arg  
1 5 10 15

Ser Thr Cys Asn Gly Ile Pro Ser Glu Lys Lys Asn Asn Phe Leu Val  
20 25 30

Ser Glu Asp His Gly Gln Lys Ile Leu Ser Val Leu Gln Asn Phe Arg  
35 40 45

Glu Gln Asn Val Phe Tyr Asp Phe Lys Ile Ile Met Lys Asp Glu Ile  
50 55 60

Ile Pro Cys His Arg Cys Val Leu Ala Ala Cys Ser Asp Phe Phe Arg  
65 70 75 80

Ala Met Phe Glu Val Asn Met Lys Glu Arg Asp Asp Gly Ser Val Thr  
85 90 95

Ile Thr Asn Leu Ser Ser Lys Ala Val Lys Ala Phe Leu Asp Tyr Ala  
100 105 110

Tyr Thr Gly Lys Thr Lys Ile Thr Asp Asp Asn Val Glu Met Phe Phe  
115 120 125

Gln Leu Ser Ser Phe Leu Gln Val Ser Phe Leu Ser Lys Ala Cys Ser  
130 135 140

Asp Phe Leu Ile Lys Ser Ile Asn Leu Glu Lys Lys

145

150

155

&lt;210&gt; 1040

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (30)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1040

Pro Ser Pro Cys Pro Cys Ser Cys Ala Trp Val Arg Trp Pro Arg Arg  
1 5 10 15

Thr Pro Pro Ser Arg Thr Thr Arg Ala Arg Thr His Gln Xaa Arg Asp  
20 25 30

Met Ala Arg Tyr Tyr Ser Ala Leu Arg His Tyr Ile Asn Leu Ile Thr  
35 40 45

Arg Gln Arg Tyr Gly Lys Arg Ser Ser Pro Glu Thr Leu Ile Ser Asp  
50 55 60

Leu Leu Met Arg Glu Ser Thr Glu Asn Val Pro Arg Thr Arg Leu Glu  
65 70 75 80

Asp Pro Ala Met Trp  
85

&lt;210&gt; 1041

&lt;211&gt; 234

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (64)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1041

Leu Gly Gln Tyr Gln Pro Ala Arg Glu Glu Ile Ser Lys Asp Leu Arg  
1 5 10 15

Ala Thr Leu Asn Ala Phe Leu Tyr His Met Gly Gln His Ser Asn Lys  
20 25 30



Phe Met Leu Val Leu Ala Ser Asn Leu Pro Glu Gln Phe Asp Cys Ala  
           35                          40                          45  
 Ile Asn Ser Arg Ile Asp Val Met Val His Phe Asp Leu Pro Gln Xaa  
           50                          55                          60  
 Glu Glu Arg Glu Arg Leu Val Arg Leu His Phe Asp Asn Cys Val Leu  
           65                          70                          75                          80  
 Lys Pro Ala Thr Glu Gly Lys Arg Arg Leu Lys Leu Ala Gln Phe Asp  
                           85                          90                          95  
 Tyr Gly Arg Lys Cys Ser Glu Val Ala Arg Leu Thr Glu Gly Met Ser  
                           100                          105                          110  
 Gly Arg Glu Ile Ala Gln Leu Ala Val Ser Trp Gln Ala Thr Ala Tyr  
           115                          120                          125  
 Ala Ser Lys Asp Gly Val Leu Thr Glu Ala Met Met Asp Ala Cys Val  
           130                          135                          140  
 Gln Asp Ala Val Gln Gln Tyr Arg Gln Lys Met Arg Trp Leu Lys Ala  
           145                          150                          155                          160  
 Glu Gly Pro Gly Arg Gly Val Glu His Pro Leu Ser Gly Val Gln Gly  
                           165                          170                          175  
 Glu Thr Leu Thr Ser Trp Ser Leu Ala Thr Asp Pro Ser Tyr Pro Cys  
           180                          185                          190  
 Leu Ala Gly Pro Cys Thr Phe Arg Ile Cys Ser Trp Met Gly Thr Gly  
           195                          200                          205  
 Leu Cys Pro Gly Pro Leu Ser Pro Arg Met Ser Cys Gly Gly Gly Arg  
           210                          215                          220  
 Pro Phe Cys Pro Pro Gly His Pro Leu Leu  
           225                          230

&lt;210&gt; 1042

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (14)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1042

Ala Asn Leu Met Lys Cys Lys Val Gln Ala Gly Met Ile Xaa Ser Val  
1 5 10 15

Cys Lys Asp Lys Ser Phe Asp Asp Glu Glu Ser Val Asp Gly Asn Arg  
20 25 30

Pro Ser Ser Ala Ala Ser Ala Phe Lys Val Pro Ala Leu Lys His Pro  
35 40 45

Glu Ile Leu Pro Thr Val Gln Gly Ser Trp Phe Ser Arg Trp Pro  
50 55 60

&lt;210&gt; 1043

&lt;211&gt; 64

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1043

Gln Leu Arg Ser Arg Ala Gly Leu Leu Ser Ser Thr Val Arg Ala Arg  
1 5 10 15

Asn Trp Pro Gln Asn Pro Gln Ser Gln Pro Trp Gly Pro Leu Gly Pro  
20 25 30

Gln Thr Pro Val Phe Ser Phe Cys Val Ala Ser Trp Phe Pro Gly Val  
35 40 45

Leu Phe Tyr Ala Ala Ser Gly Val Arg Ser Ser Ala Phe Asn Leu Phe  
50 55 60

&lt;210&gt; 1044

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1044

Ala Ser Arg Ser Leu Pro Thr Ala Ala Val His Val Arg Leu Leu Pro  
1 5 10 15

Leu Cys Ala Glu Arg Gln Glu Asp His Glu Asn Asp Pro Leu Ser Glu  
20 25 30

Leu Gln Arg Gln Ile Ala Gln Pro Glu Met Arg Cys Thr Ile Arg Leu  
35 40 45

Leu Asp Asp Ser Glu Ile Ser Cys His Ile Gln Arg Glu Thr Lys Gly  
50 55 60

Gln Phe Leu Ile Asp His Ile Cys Asn Tyr Tyr Ser Leu Leu Glu Lys  
65 70 75 80

Asp Tyr Phe Gly Ile Arg Tyr Val Asp Pro Glu Lys Gln Arg His Trp  
85 90 95

Ala

<210> 1045  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 1045  
Thr Leu Ile Phe Pro Pro Leu Arg Ile Ile Asn Phe Leu Ser Phe Tyr  
1 5 10 15

His Ile Cys Phe Arg Ser Phe Phe Phe Leu Lys Lys Ser Ile Thr Asp  
20 25 30

Leu Ala Lys Val Pro Phe Asp Gln Tyr Pro Thr  
35 40

<210> 1046  
<211> 221  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (29)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (182)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (186)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (209)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (212)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (214)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1046

Arg Ser Gly Arg Leu Arg Leu Ser Leu Tyr Cys Gly Ala Gly Gln Gly  
1 5 10 15

Val Arg Ala Gly Arg Gly Thr Gly Thr Pro Ala Val Xaa Gly Arg Leu  
20 25 30

Glu Ile Met Glu Gly Lys Trp Leu Leu Cys Met Leu Leu Val Leu Gly  
35 40 45

Thr Ala Ile Val Glu Ala His Asp Gly His Asp Asp Asp Val Ile Asp  
50 55 60

Ile Glu Asp Asp Leu Asp Asp Val Ile Glu Glu Val Glu Asp Ser Lys  
65 70 75 80

Pro Asp Thr Thr Ala Pro Pro Ser Ser Pro Lys Val Thr Tyr Lys Ala  
85 90 95

Pro Val Pro Thr Gly Glu Val Tyr Phe Ala Asp Ser Phe Asp Arg Gly  
100 105 110

Thr Leu Ser Gly Trp Ile Leu Ser Lys Ala Lys Lys Asp Asp Thr Asp  
115 120 125

Asp Glu Ile Ala Lys Tyr Asp Gly Lys Trp Glu Val Glu Glu Met Lys  
130 135 140

Glu Ser Lys Leu Pro Gly Asp Lys Gly Leu Val Leu Met Ser Arg Ala  
145 150 155 160

Lys His His Ala Ile Ser Ala Lys Leu Asn Lys Pro Phe Leu Phe Asp  
165 170 175

Thr Lys Pro Leu Ile Xaa Gln Tyr Glu Xaa Asn Phe Gln Asn Gly Ile  
180 185 190

Glu Cys Gly Gly Ala Tyr Val Lys Leu Leu Ser Lys Thr Pro Glu Leu  
195 200 205

Xaa Leu Asp Xaa Val Xaa Arg Thr Ile Asn Cys Leu His  
210 215 220

<210> 1047

<211> 82

<212> PRT

<213> Homo sapiens

<400> 1047

Gly Ile Pro Pro His Phe Cys Gly Phe Phe Pro Val Val Asp Asp Gln  
1 5 10 15

Gly Trp Asn Leu Gln Ser Met Gly Pro Asp Phe Leu Pro Ser Ser Gln  
20 25 30

Ile Asp Ser Ala Ala Ser His Leu Cys Ser Ala Pro Val Ala Leu Lys  
35 40 45

Cys Asn Arg Asn His His Pro Arg Thr Met Gly Ser Met Pro Val Gly  
50 55 60

Lys Ala Gln Val Arg Ser Leu Ser Ser Gln His Ile Ala Val Ala Gly  
65 70 75 80

Thr Trp

<210> 1048

<211> 85

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (65)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (66)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (74)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1048

Pro Gly Ser Pro Asp Gln Arg Pro Thr Pro Gln Gly Glu Phe Ile Leu  
1 5 10 15

Cys Gln Gln Gln Ser Phe Pro Ser Ser Glu Ala Ser His Pro His Pro  
20 25 30

Arg Arg Gln Gly Lys Gln Ala Arg Gly Gly Gln Glu Ser Ser Gln Leu  
35 40 45

Ser Glu Ala Ala Pro Pro Ala Pro Lys His Leu Pro Cys Ser Gln Leu  
50 55 60

Xaa Xaa Gln Leu Leu Pro Ala Ala Lys Xaa Thr Ala Ala Phe Arg Leu  
65 70 75 80

Thr Ser Met Pro Leu  
85

<210> 1049

<211> 75

<212> PRT

<213> Homo sapiens

<400> 1049

Ser Pro Cys Arg Glu Glu Ser Gln Gln Ile Ile Ser Lys Leu Glu Asn  
1 5 10 15

Gln Glu Ile Thr Val Ile Ile Arg Asp Ile Trp Gly Gly Tyr Lys Tyr  
20 25 30

Gln Asn Lys Lys Ile Lys Glu Met Lys Ile Val Val Ser Gly Glu Leu  
35 40 45

Lys Ser Lys Ile Gln Arg Cys Glu Ala Asp Leu Ile Tyr Tyr Leu Thr  
50 55 60

Cys Ile Leu Phe Ile Ala Gln Tyr Ser Val Phe  
65 70 75

<210> 1050  
<211> 43  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (11)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (34)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1050  
Gly Lys Lys Ile Lys Lys Leu Ala Ser Ala Xaa Arg Gly Gly Ser Leu  
1 5 10 15  
Pro Val Ile Pro Ala Leu Ser Ala Ala Glu Ala Ser Gly Ser Leu Glu  
20 25 30  
Val Xaa Ser Ser Lys Thr Ser Leu Gly Gln Thr  
35 40

<210> 1051  
<211> 341  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (101)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1051  
Gly Pro Gln Glu Met Thr Ala Gly Gly Gln Ala Glu Ala Glu Gly Ala  
1 5 10 15  
Gly Gly Glu Pro Gly Ala Ala Arg Leu Pro Ser Arg Val Ala Arg Leu  
20 25 30  
Leu Ser Ala Leu Phe Tyr Gly Thr Cys Ser Phe Leu Ile Val Leu Val  
35 40 45  
Asn Lys Ala Leu Leu Thr Thr Tyr Gly Phe Pro Ser Pro Ile Phe Leu  
50 55 60  
Gly Ile Gly Gln Met Ala Ala Thr Ile Met Ile Leu Tyr Val Ser Lys

65	70	75	80
Leu Asn Lys Ile Ile His Phe Pro Asp Phe Asp Lys Lys Ile Pro Val	85	90	95
Lys Leu Phe Pro Xaa Pro Leu Leu Tyr Val Gly Asn His Ile Ser Gly	100	105	110
Leu Ser Ser Thr Ser Lys Leu Ser Leu Pro Met Phe Thr Val Leu Arg	115	120	125
Lys Phe Thr Ile Pro Leu Thr Leu Leu Leu Glu Thr Ile Ile Leu Gly	130	135	140
Lys Gln Tyr Ser Leu Asn Ile Ile Leu Ser Val Phe Ala Ile Ile Leu	145	150	155
Gly Ala Phe Ile Ala Ala Gly Ser Asp Leu Ala Phe Asn Leu Glu Gly	165	170	175
Tyr Ile Phe Val Phe Leu Asn Asp Ile Phe Thr Ala Ala Asn Gly Val	180	185	190
Tyr Thr Lys Gln Lys Met Asp Pro Lys Glu Leu Gly Lys Tyr Gly Val	195	200	205
Leu Phe Tyr Asn Ala Cys Phe Met Ile Ile Pro Thr Leu Ile Ile Ser	210	215	220
Val Ser Thr Gly Asp Leu Gln Gln Ala Thr Glu Phe Asn Gln Trp Lys	225	230	235
Asn Val Val Phe Ile Leu Gln Phe Leu Leu Ser Cys Phe Leu Gly Phe	245	250	255
Leu Leu Met Tyr Ser Thr Val Leu Cys Ser Tyr Tyr Asn Ser Ala Leu	260	265	270
Thr Thr Ala Val Val Gly Ala Ile Lys Asn Val Ser Val Ala Tyr Ile	275	280	285
Gly Ile Leu Ile Gly Gly Asp Tyr Ile Phe Ser Leu Leu Asn Phe Val	290	295	300
Gly Leu Asn Ile Cys Met Ala Gly Gly Leu Arg Tyr Ser Phe Leu Thr	305	310	315
Leu Ser Ser Gln Leu Lys Pro Lys Pro Val Gly Glu Glu Asn Ile Cys	325	330	335
Leu Asp Leu Lys Ser			



340

&lt;210&gt; 1052

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1052

Pro Ala Ala Arg Ala Ala Thr Asp Ser Val Ser Ala Ile Phe Asp Lys  
1 5 10 15

Gly Lys Lys Val Arg Glu Ser Phe Gln Ala Leu Gly Arg Ile Ile Phe  
20 25 30

Phe Gln Asp Ala Val Phe Arg Thr Phe Val Ile Lys His Thr Ala Gln  
35 40 45

Val Ile Thr Gly Ile Asp Ser Asp Ile Arg His Leu Ser Leu Ala Leu  
50 55 60

Leu Lys Asn Gly Gly Asn Val Ile Ser Trp Ala Gly Val Gly Cys Asn  
65 70 75 80

Pro Glu Val Pro Leu  
85

&lt;210&gt; 1053

&lt;211&gt; 724

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (87)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (680)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1053

Val Asp Ser Glu Ser Ala Ser Val Val Gly Lys Arg Pro Pro Phe His  
1 5 10 15

Gly Thr Pro Ser Thr Met Ser Ser Pro Ala Ser Thr Pro Ser Arg Arg  
20 25 30

Gly Ser Arg Arg Gly Arg Ala Thr Pro Ala Gln Thr Pro Arg Ser Glu  
35 40 45

Asp Ala Arg Ser Ser Pro Ser Gln Arg Arg Arg Gly Glu Asp Ser Thr  
50 55 60

Ser Thr Gly Glu Leu Gln Pro Met Pro Thr Ser Pro Gly Val Asp Leu  
65 70 75 80

Gln Ser Pro Ala Ala Gln Xaa Val Leu Phe Ser Ser Pro Pro Gln Met  
85 90 95

His Ser Ser Ala Ile Pro Leu Asp Phe Asp Val Ser Ser Pro Leu Thr  
100 105 110

Tyr Gly Thr Pro Ser Ser Arg Val Glu Gly Thr Pro Arg Ser Gly Val  
115 120 125

Arg Gly Thr Pro Val Arg Gln Arg Pro Asp Leu Gly Ser Ala Gln Lys  
130 135 140

Gly Leu Gln Val Asp Leu Gln Ser Asp Gly Ala Ala Ala Glu Asp Ile  
145 150 155 160

Val Ala Ser Glu Gln Ser Leu Gly Gln Lys Leu Val Ile Trp Gly Thr  
165 170 175

Asp Val Asn Val Ala Ala Cys Lys Glu Asn Phe Gln Arg Phe Leu Gln  
180 185 190

Arg Phe Ile Asp Pro Leu Ala Lys Glu Glu Glu Asn Val Gly Ile Asp  
195 200 205

Ile Thr Glu Pro Leu Tyr Met Gln Arg Leu Gly Glu Ile Asn Val Ile  
210 215 220

Gly Glu Pro Phe Leu Asn Val Asn Cys Glu His Ile Lys Ser Phe Asp  
225 230 235 240

Lys Asn Leu Tyr Arg Gln Leu Ile Ser Tyr Pro Gln Glu Val Ile Pro  
245 250 255

Thr Phe Asp Met Ala Val Asn Glu Ile Phe Phe Asp Arg Tyr Pro Asp  
260 265 270

Ser Ile Leu Glu His Gln Ile Gln Val Arg Pro Phe Asn Ala Leu Lys  
275 280 285

Thr Lys Asn Met Arg Asn Leu Asn Pro Glu Asp Ile Asp Gln Leu Ile  
290 295 300

Thr Ile Ser Gly Met Val Ile Arg Thr Ser Gln Leu Ile Pro Glu Met  
305 310 315 320

Gln Glu Ala Phe Phe Gln Cys Gln Val Cys Ala His Thr Thr Arg Val  
325 330 335

Glu Met Asp Arg Gly Arg Ile Ala Glu Pro Ser Val Cys Gly Arg Cys  
340 345 350

His Thr Thr His Ser Met Ala Leu Ile His Asn Arg Ser Leu Phe Ser  
355 360 365

Asp Lys Gln Met Ile Lys Leu Gln Glu Ser Pro Glu Asp Met Pro Ala  
370 375 380

Gly Gln Thr Pro His Thr Val Ile Leu Phe Ala His Asn Asp Leu Val  
385 390 395 400

Asp Lys Val Gln Pro Gly Asp Arg Val Asn Val Thr Gly Ile Tyr Arg  
405 410 415

Ala Val Pro Ile Arg Val Asn Pro Arg Val Ser Asn Val Lys Ser Val  
420 425 430

Tyr Lys Thr His Ile Asp Val Ile His Tyr Arg Lys Thr Asp Ala Lys  
435 440 445

Arg Leu His Gly Leu Asp Glu Glu Ala Glu Gln Lys Leu Phe Ser Glu  
450 455 460

Lys Arg Val Glu Leu Leu Lys Glu Leu Ser Arg Lys Pro Asp Ile Tyr  
465 470 475 480

Glu Arg Leu Ala Ser Ala Leu Ala Pro Ser Ile Tyr Glu His Glu Asp  
485 490 495

Ile Lys Lys Gly Ile Leu Leu Gln Leu Phe Gly Gly Thr Arg Lys Asp  
500 505 510

Phe Ser His Thr Gly Arg Gly Lys Phe Arg Ala Glu Ile Asn Ile Leu  
515 520 525

Leu Cys Gly Asp Pro Gly Thr Ser Lys Ser Gln Leu Leu Gln Tyr Val  
530 535 540

Tyr Asn Leu Val Pro Arg Gly Gln Tyr Thr Ser Gly Lys Gly Ser Ser  
545 550 555 560

Ala Val Gly Leu Thr Ala Tyr Val Met Lys Asp Pro Glu Thr Arg Gln  
565 570 575

Leu Val Leu Gln Thr Gly Ala Leu Val Leu Ser Asp Asn Gly Ile Cys  
580 585 590

Cys Ile Asp Glu Phe Asp Lys Met Asn Glu Ser Thr Arg Ser Val Leu  
595 600 605

His Glu Val Met Glu Gln Gln Thr Leu Ser Ile Ala Lys Ala Gly Ile  
610 615 620

Ile Cys Gln Leu Asn Ala Arg Thr Ser Val Leu Ala Ala Ala Asn Pro  
625 630 635 640

Ile Glu Ser Gln Trp Asn Pro Lys Lys Thr Thr Ile Glu Asn Ile Gln  
645 650 655

Leu Pro His Thr Leu Leu Ser Arg Phe Asp Leu Ile Phe Leu Met Leu  
660 665 670

Asp Pro Gln Asp Glu Ala Tyr Xaa Gln Ala Ser Gly Ser Pro Pro Gly  
675 680 685

Arg Thr Val Leu Pro Glu Arg Gly Ala Gly Arg Gly Gly Ala Pro Gly  
690 695 700

His Gly Gly Ala Lys Gly Leu His Cys Leu Arg Ala Gln His His His  
705 710 715 720

Ala Ala Ala Lys

<210> 1054

<211> 52

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1054

Leu Leu Cys Phe Tyr Glu Pro Arg Cys Ser Arg Lys Trp Xaa Gln Arg  
1 5 10 15

His Ala Ser Xaa Arg Ser Pro Tyr Pro Ala Phe Val Pro Ala Val Pro  
 20 25 30

Lys Ser Leu Ala Arg Ile Leu His Leu Gly Lys Lys Val Leu Asn Ala  
 35 40 45

Asn Val Thr Pro  
 50

<210> 1055  
 <211> 221  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (205)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (207)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1055  
 Arg Arg Gly Phe Gly Gly Val Arg Ala Ser Glu Ala Cys Gly Leu Arg  
 1 5 10 15

Arg Arg Ala Gly Phe Gly Gly Val Arg Ala Ser Gly Ala Met Gly Thr  
 20 25 30

Pro Pro Gly Leu Gln Thr Asp Cys Glu Ala Leu Leu Ser Arg Phe Gln  
 35 40 45

Glu Thr Asp Ser Val Arg Phe Glu Asp Phe Thr Glu Leu Trp Arg Asn  
 50 55 60

Met Lys Phe Gly Thr Ile Phe Cys Gly Arg Met Arg Asn Leu Glu Lys  
 65 70 75 80

Asn Met Phe Thr Lys Glu Ala Leu Ala Leu Ala Trp Arg Tyr Phe Leu  
 85 90 95

Pro Pro Tyr Thr Phe Gln Ile Arg Val Gly Ala Leu Tyr Leu Leu Tyr  
 100 105 110

Gly Leu Tyr Asn Thr Gln Leu Cys Gln Pro Lys Gln Lys Ile Arg Val  
 115 120 125

Ala Leu Lys Asp Trp Asp Glu Val Leu Lys Phe Gln Gln Asp Leu Val  
 130 135 140

Asn Ala Gln His Phe Asp Ala Ala Tyr Ile Phe Arg Lys Leu Arg Leu  
 145 150 155 160

Asp Arg Ala Phe His Phe Thr Ala Met Pro Lys Leu Leu Ser Tyr Arg  
 165 170 175

Met Lys Lys Lys Ile His Arg Ala Glu Val Thr Glu Glu Phe Lys Asp  
 180 185 190

Pro Ser Asp Arg Val Met Lys Leu Ile Thr Ser Asp Xaa Leu Xaa Glu  
 195 200 205

Met Leu Asn Gly His Asp His Tyr Gln Asn Met Asn Met  
 210 215 220

<210> 1056

<211> 59

<212> PRT

<213> Homo sapiens

<400> 1056

Lys Ala Val Arg Ser Met Leu Leu Ser Ser Leu Arg Glu Asn Phe Leu  
 1 5 10 15

Asn Asn Thr Arg Lys Arg Lys Ile Gly Leu Phe Ser Leu Leu Val Leu  
 20 25 30

Ser Ile Leu Ser Ser Leu Gln Gly Arg Val Ala Lys Leu Trp Gly Leu  
 35 40 45

Asn Pro Glu Gly Gly Leu Ser Gly His Gln Thr  
 50 55

<210> 1057

<211> 193

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (192)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1057

Ser Leu Pro Trp Arg Val Pro Arg Ser Met Glu Thr Phe Asp Pro Thr  
1 5 10 15

Glu Leu Pro Glu Leu Leu Lys Leu Tyr Tyr Arg Arg Leu Phe Pro Tyr  
20 25 30

Ser Gln Tyr Tyr Arg Trp Leu Asn Tyr Gly Gly Val Ile Lys Asn Tyr  
35 40 45

Phe Gln His Arg Glu Phe Ser Phe Thr Leu Lys Asp Asp Ile Tyr Ile  
50 55 60

Arg Tyr Gln Ser Phe Asn Asn Gln Ser Asp Leu Glu Lys Glu Met Gln  
65 70 75 80

Lys Met Asn Pro Tyr Lys Ile Asp Ile Gly Ala Val Tyr Ser His Arg  
85 90 95

Pro Asn Gln His Asn Thr Val Lys Leu Gly Ala Phe Gln Ala Gln Glu  
100 105 110

Lys Glu Leu Val Phe Asp Ile Asp Met Thr Asp Tyr Asp Asp Val Arg  
115 120 125

Arg Cys Cys Ser Ser Ala Asp Ile Cys Pro Lys Cys Trp Thr Leu Met  
130 135 140

Thr Met Ala Ile Arg Ile Ile Asp Arg Ala Leu Lys Glu Asp Phe Gly  
145 150 155 160

Phe Lys His Arg Leu Trp Val Tyr Ser Gly Arg Arg Gly Val His Cys  
165 170 175

Trp Val Cys Asp Glu Ser Val Arg Asn Cys Leu Leu Gln Tyr Val Xaa  
180 185 190

Gly

&lt;210&gt; 1058

&lt;211&gt; 55

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (51)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1058

Asp Glu Asp Asn Glu Lys Glu Lys Arg Asp Ser Leu Gly Asn Glu Glu  
1 5 10 15

Ser Val Asp Lys Thr Ala Cys Glu Cys Val Arg Ser Pro Arg Glu Ser  
20 25 30

Leu Asp Asp Leu Phe Gln Ile Cys Ser Pro Cys Ala Ile Ala Ser Gly  
35 40 45

Leu Arg Xaa Thr Trp Leu Asn  
50 55

&lt;210&gt; 1059

&lt;211&gt; 205

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (128)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (205)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1059

Arg Val Ser Leu Val Val Thr Glu Thr Val Asp Ala Gly Leu Phe Gly  
1 5 10 15

Glu Gly Ile Val Glu Ser Leu Ile His Ala Trp Glu His Leu Leu Leu  
20 25 30

Gln Pro Lys Thr Lys Gly Glu Ser Ala Asn Cys Glu Lys Tyr Gly Lys  
35 40 45

Val Ile Pro Ala Ser Ala Val Ile Phe Gly Met Ala Val Glu Cys Ala  
50 55 60

Glu Ile Arg Arg His His Arg Val Gly Ile Lys Asp Ile Ala Gly Ile  
65 70 75 80

His Leu Pro Thr Asn Val Lys Phe Gln Ser Pro Ala Tyr Ser Ser Val  
85 90 95

Asp Thr Glu Glu Thr Ile Glu Pro Tyr Thr Thr Glu Lys Met Ser Arg



100 105 110  
Val Pro Gly Gly Tyr Leu Ala Leu Thr Glu Cys Phe Glu Ile Met Xaa  
115 120 125  
Val Asp Phe Asn Asn Leu Gln Glu Leu Lys Ser Leu Ala Thr Lys Lys  
130 135 140  
Pro Gly Lys Ile Gly Ile Pro Val Ile Lys Glu Gly Ile Leu Asp Ala  
145 150 155 160  
Val Val Val Trp Phe Val Leu Gln Leu Asp Asp Glu His Ser Leu Ser  
165 170 175  
Thr Ser Pro Asn Glu Glu Thr Cys Trp Glu Gln Ala Val Tyr Pro Val  
180 185 190  
His Asp Leu Ala Asp Tyr Arg Ile Lys Arg Gly Asp Xaa  
195 200 205

<210> 1060  
<211> 92  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (72)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1060  
Pro Val Lys Val Trp Glu Gly Leu Arg Glu Lys Arg Ser Val Phe Ser  
1 5 10 15  
Ser Gly Ser Gly Ser Cys Lys Leu His Leu Pro Gly Ala Leu Pro Leu  
20 25 30  
Leu Tyr Pro Phe Ala Val Cys Pro Pro Pro Pro Gly Ser Trp Ser Pro  
35 40 45  
Ser Cys Ser Asn Ser Phe Cys Ser Tyr Ser Arg Gly Leu Leu Gly Leu  
50 55 60  
Leu Ser Pro Val Arg Leu Gly Xaa Ala Leu Gly Ser Trp Val Ser Ser  
65 70 75 80  
Thr Asp His Ala Arg Pro Leu Arg Pro Gln Ile Ile  
85 90

<210> 1061  
 <211> 295  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (243)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (277)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1061  
 Ala Glu Ala Ile Pro Leu Ala Asp Gln Pro His Leu Leu Gln Pro Asn  
   1                  5                  10                  15  
 Ala Arg Lys Glu Asp Leu Phe Gly Arg Pro Ser Gln Gly Leu Tyr Ser  
           20                  25                  30  
 Ser Ser Ala Ser Ser Gly Lys Cys Leu Met Glu Val Thr Val Asp Arg  
       35                  40                  45  
 Asn Cys Leu Glu Val Leu Pro Thr Lys Met Ser Tyr Ala Ala Asn Leu  
       50                  55                  60  
 Lys Asn Val Met Asn Met Gln Asn Arg Gln Lys Lys Glu Gly Glu Glu  
       65                  70                  75                  80  
 Gln Pro Val Leu Pro Glu Glu Thr Glu Ser Ser Lys Pro Gly Pro Ser  
           85                  90                  95  
 Ala His Asp Leu Ala Ala Gln Leu Lys Ser Ser Leu Leu Ala Glu Ile  
       100                  105                  110  
 Gly Leu Thr Glu Ser Glu Gly Pro Pro Leu Thr Ser Phe Arg Pro Gln  
       115                  120                  125  
 Cys Ser Phe Met Gly Met Val Ile Ser His Asp Met Leu Leu Gly Arg  
       130                  135                  140  
 Trp Arg Leu Ser Leu Leu Phe Gly Arg Val Phe Met Glu Asp Val  
       145                  150                  155                  160  
 Gly Ala Glu Pro Gly Ser Ile Leu Thr Glu Leu Gly Gly Phe Glu Val  
           165                  170                  175

Lys Glu Ser Lys Phe Arg Arg Glu Met Glu Lys Leu Arg Asn Gln Gln  
180 185 190

Ser Arg Asp Leu Ser Leu Glu Val Asp Arg Asp Arg Asp Leu Leu Ile  
195 200 205

Gln Gln Thr Met Arg Gln Leu Asn Asn His Phe Gly Arg Arg Cys Ala  
210 215 220

Thr Thr Pro Met Ala Val His Arg Val Lys Val Thr Phe Lys Asp Glu  
225 230 235 240

Pro Gly Xaa Gly Ser Gly Val Ala Arg Ser Phe Tyr Thr Ala Ile Ala  
245 250 255

Gln Ala Phe Leu Ser Asn Glu Lys Leu Pro Asn Leu Glu Cys Ile Pro  
260 265 270

Lys Lys Lys Phe Xaa Pro Pro Gln Lys Pro Lys Lys Lys Gly Pro Thr  
275 280 285

Pro Asn His Gln Arg Val Phe  
290 295

<210> 1062

<211> 35

<212> PRT

<213> Homo sapiens

<400> 1062

Gly Glu Glu His Ile Pro Gln Glu Ala Pro Gln Gly Ala Glu Thr Ala  
1 5 10 15

Leu Ile Pro Ala Asp Ile Thr Glu Lys Gln Gln Ser Leu Phe Asn Phe  
20 25 30

Val Thr Met  
35

<210> 1063

<211> 210

<212> PRT

<213> Homo sapiens

<400> 1063

Gln Tyr Phe Met Thr Met Asp Gly Asp Ser Ser Thr Thr Asp Ala Ser  
1 5 10 15

Gln Leu Gly Ile Ser Ala Asp Tyr Ile Gly Gly Ser His Tyr Val Ile  
                   20                                  25                                  30  
 Gln Pro His Asp Asp Thr Glu Asp Ser Met Asn Asp His Glu Asp Thr  
                   35                                  40                                  45  
 Asn Gly Ser Lys Glu Ser Phe Arg Glu Gln Asp Ile Tyr Leu Pro Ile  
                   50                                  55                                  60  
 Ala Asn Val Ala Arg Ile Met Lys Asn Ala Ile Pro Gln Thr Gly Lys  
                   65                                  70                                  75                                  80  
 Ile Ala Lys Asp Ala Lys Glu Cys Val Gln Glu Cys Val Ser Glu Phe  
                                   85                                  90                                  95  
 Ile Ser Phe Ile Thr Ser Glu Ala Ser Glu Arg Cys His Gln Glu Lys  
                   100                                  105                                  110  
 Arg Lys Thr Ile Asn Gly Glu Asp Ile Leu Phe Ala Met Ser Thr Leu  
                   115                                  120                                  125  
 Gly Phe Asp Ser Tyr Val Glu Pro Leu Lys Leu Tyr Leu Gln Lys Phe  
                   130                                  135                                  140  
 Arg Glu Ala Met Lys Gly Glu Lys Gly Ile Gly Gly Ala Val Thr Ala  
                   145                                  150                                  155                                  160  
 Thr Asp Gly Leu Ser Glu Glu Leu Thr Glu Glu Ala Phe Thr Asn Gln  
                   165                                  170                                  175  
 Leu Pro Ala Gly Leu Ile Thr Thr Asp Gly Gln Gln Gln Asn Val Met  
                   180                                  185                                  190  
 Val Tyr Thr Thr Ser Tyr Gln Gln Ile Ser Gly Val Gln Gln Ile Gln  
                   195                                  200                                  205  
 Phe Ser  
                   210

&lt;210&gt; 1064

&lt;211&gt; 332

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (216)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (315)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (326)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1064

Leu Arg Pro Ser Val Tyr Pro Val Ala Ser Ser Leu Pro Val Pro Asp  
1 5 10 15

Leu Ile Leu Arg Gln Arg Leu Leu Gln Asp Pro Val Ala Arg Pro Gln  
20 25 30

Ala Met Ala Gly Pro Phe Ser Arg Leu Leu Ser Ala Arg Pro Gly Leu  
35 40 45

Arg Leu Leu Ala Leu Ala Gly Ala Gly Ser Leu Ala Ala Gly Phe Leu  
50 55 60

Leu Arg Pro Glu Pro Val Arg Ala Ala Ser Glu Arg Arg Arg Leu Tyr  
65 70 75 80

Pro Pro Ser Ala Glu Tyr Pro Asp Leu Arg Lys His Asn Asn Cys Met  
85 90 95

Ala Ser His Leu Thr Pro Ala Val Tyr Ala Arg Leu Cys Asp Lys Thr  
100 105 110

Thr Pro Thr Gly Trp Thr Leu Asp Gln Cys Ile Gln Thr Gly Val Asp  
115 120 125

Asn Pro Gly His Pro Phe Ile Lys Thr Val Gly Met Val Ala Gly Asp  
130 135 140

Glu Glu Thr Tyr Glu Val Phe Ala Asp Leu Phe Asp Pro Val Ile Gln  
145 150 155 160

Glu Arg His Asn Gly Tyr Asp Pro Arg Thr Met Lys His Thr Thr Asp  
165 170 175

Leu Asp Ala Ser Lys Ile Arg Ser Gly Tyr Phe Asp Glu Arg Tyr Val  
180 185 190

Leu Ser Ser Arg Val Arg Thr Gly Arg Ser Ile Arg Gly Leu Ser Leu  
195 200 205

Pro Pro Ala Cys Thr Arg Ala Xaa Arg Arg Glu Val Glu Arg Val Val  
 210 215 220  
 Val Asp Ala Leu Ser Gly Leu Lys Gly Asp Leu Ala Gly Arg Tyr Tyr  
 225 230 235 240  
 Arg Leu Ser Glu Met Thr Glu Ala Glu Gln Gln Gln Leu Ile Asp Asp  
 245 250 255  
 His Phe Leu Phe Asp Lys Pro Val Ser Pro Leu Leu Thr Ala Ala Gly  
 260 265 270  
 Met Ala Arg Asp Trp Pro Asp Ala Arg Gly Ile Trp His Asn Asn Glu  
 275 280 285  
 Lys Ser Phe Leu Ile Trp Val Asn Glu Glu Asp His Thr Arg Val Ile  
 290 295 300  
 Ser Met Glu Lys Gly Gly Asn Met Lys Arg Xaa Phe Glu Arg Ser Ala  
 305 310 315 320  
 Glu Ala Ser Lys Arg Xaa Arg Asp Tyr Val Gly Asp  
 325 330

<210> 1065  
 <211> 241  
 <212> PRT  
 <213> Homo sapiens

<400> 1065  
 Ser Phe Phe Phe Lys Val Ser Arg Ser Glu Ala Ser His Arg Met Ile  
 1 5 10 15  
 Leu Leu Asn Asn Ser His Lys Leu Leu Ala Leu Tyr Lys Ser Leu Ala  
 20 25 30  
 Arg Ser Ile Pro Glu Ser Leu Lys Val Tyr Gly Ser Val Tyr His Ile  
 35 40 45  
 Asn His Gly Asn Pro Phe Asn Met Glu Val Leu Val Asp Ser Trp Pro  
 50 55 60  
 Glu Tyr Gln Met Val Ile Ile Arg Pro Gln Lys Gln Glu Met Thr Asp  
 65 70 75 80  
 Asp Met Asp Ser Tyr Thr Asn Val Tyr Arg Met Phe Ser Lys Glu Pro  
 85 90 95  
 Gln Lys Ser Glu Glu Val Leu Lys Asn Cys Glu Ile Val Asn Trp Lys

100	105	110
Gln Arg Leu Gln Ile Gln Gly	Leu Gln Glu Ser Leu Gly	Glu Gly Ile
115	120	125
Arg Val Ala Thr Phe Ser Lys	Ser Val Lys Val Glu His	Ser Arg Ala
130	135	140
Leu Leu Leu Val Thr Glu Asp	Ile Leu Lys Leu Asn Ala	Ser Ser Lys
145	150	155
Ser Lys Leu Gly Ser Trp Ala	Glu Thr Gly His Pro Asp	Asp Glu Phe
165	170	175
Glu Ser Glu Thr Pro Asn Phe	Lys Tyr Ala Gln Leu Asp	Val Ser Tyr
180	185	190
Ser Gly Leu Val Asn Asp Asn	Trp Lys Arg Gly Lys Asn	Glu Arg Ser
195	200	205
Leu His Tyr Ile Lys Arg Cys	Ile Glu Asp Leu Pro Ala	Ala Cys Met
210	215	220
Leu Gly Pro Glu Glu Ile Pro	Val Ser Trp Val Thr Met	Gly Pro Phe
225	230	235
240		

Leu

&lt;210&gt; 1066

&lt;211&gt; 142

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (130)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1066

Glu Val Leu Arg Asp Cys Xaa	Ser Pro Asn Ser Ile Ser	Ile Met Gly
1	5	10
15		

Leu Asn Thr Ser Arg Val Ala Ile Thr Leu Lys Pro Gln Asp Pro Met

20

25

30

Glu Gln Asn Val Ala Glu Leu Leu Gln Phe Leu Leu Val Lys Asp Gln  
35 40 45

Ser Lys Tyr Pro Ile Arg Glu Ser Glu Met Arg Glu Tyr Ile Val Lys  
50 55 60

Glu Tyr Arg Asn Gln Phe Pro Glu Ile Leu Arg Arg Ala Ala Ala His  
65 70 75 80

Leu Glu Cys Ile Phe Arg Phe Glu Leu Arg Glu Leu Asp Pro Glu Ala  
85 90 95

His Thr Tyr Ile Leu Leu Asn Lys Leu Gly Pro Val Pro Phe Glu Gly  
100 105 110

Leu Glu Glu Ser Pro Asn Gly Pro Lys Met Gly Leu Leu Met Met Ile  
115 120 125

Leu Xaa Gln Ile Phe Leu Asn Gly Asn Gln Ala Lys Glu Ala  
130 135 140

&lt;210&gt; 1067

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1067

Thr Arg Ser Ala Gly Ser Arg Gly Gly Ala Trp Thr Pro Ala Trp Gln  
1 5 10 15

Val Pro Pro Arg Glu Arg Gly Ser Arg Cys Ile Ser Ala Ala Phe Ile  
20 25 30

Thr Asp Leu Gly Leu His Gln Gly Thr Cys Arg Thr Ala Leu Lys Thr  
35 40 45

Ala Glu Ser Glu Glu Pro Ser Leu Gly Pro Gly Arg Pro Ala Val Gln  
50 55 60

Leu Ala Ser Arg Ile Pro Leu Pro Ala Pro Ala Asp Asp Leu Phe Trp  
65 70 75 80

Arg Val Glu Asn Val Leu Gly Phe Lys Val Gln Ser Gly Phe Leu Ser  
85 90 95

Ile His Tyr Ser Cys Leu His Ser Thr Asn Lys Ser Trp Glu Arg  
100 105 110



<210> 1068  
<211> 59  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (23)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1068  
Leu Leu Tyr Gln Ser Ile Glu Asp Ser Ser Tyr Leu Leu Pro Val Ala  
1 5 10 15  
Gln Phe Arg Phe Trp Glu Xaa Ala Glu Gln Val Lys His Arg Lys Leu  
20 25 30  
Lys Arg Arg Asn Pro His Phe Gly Pro Ile Phe Leu Leu Asp Tyr Phe  
35 40 45  
Leu Ile Ser Ile Leu Pro Ile Val Leu Met Phe  
50 55

<210> 1069  
<211> 55  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (19)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1069  
Cys Leu Ala Val Arg Arg His Glu Leu Arg Thr Val His His Gly Ser  
1 5 10 15  
Glu Arg Xaa Arg Asn Pro Ser Pro Ile Arg Thr Met Thr Asp Ile Leu  
20 25 30  
Ser Arg Gly Pro Lys Ser Met Ile Ser Leu Ala Gly Gly Leu Pro Asn  
35 40 45  
Pro Asn Met Phe Pro Phe Lys  
50 55

<210> 1070  
 <211> 369  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (27)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (29)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (36)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (41)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (293)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1070  
 Asp Arg Ser Phe Leu Glu Asp Thr Thr Pro Ala Arg Asp Glu Lys Lys  
 1 5 10 15  
 Val Gly Ala Lys Ala Ala Gln Gln Asp Ser Xaa Ser Xaa Gly Glu Ala  
 20 25 30  
 Leu Gly Gly Xaa Pro Met Val Ala Xaa Phe Gln Asp Asp Val Asp Leu  
 35 40 45  
 Glu Asp Gln Pro Arg Gly Ser Pro Pro Leu Pro Ala Gly Pro Val Pro  
 50 55 60  
 Ser Gln Asp Ile Thr Leu Ser Ser Glu Glu Glu Ala Glu Val Ala Ala  
 65 70 75 80  
 Pro Thr Lys Gly Pro Ala Pro Ala Pro Gln Gln Cys Ser Glu Pro Glu  
 85 90 95

Thr Lys Trp Ser Ser Ile Pro Ala Ser Lys Pro Arg Arg Gly Thr Ala  
100 105 110

Pro Thr Arg Thr Ala Ala Pro Pro Trp Pro Gly Gly Val Ser Val Arg  
115 120 125

Thr Gly Pro Glu Lys Arg Ser Ser Thr Arg Pro Pro Ala Glu Met Glu  
130 135 140

Pro Gly Lys Gly Glu Gln Ala Ser Ser Ser Glu Ser Asp Pro Glu Gly  
145 150 155 160

Pro Ile Ala Ala Gln Met Leu Ser Phe Val Met Asp Asp Pro Asp Phe  
165 170 175

Glu Ser Glu Gly Ser Asp Thr Gln Arg Arg Ala Asp Asp Phe Pro Val  
180 185 190

Arg Asp Asp Pro Ser Asp Val Thr Asp Glu Asp Glu Gly Pro Ala Glu  
195 200 205

Pro Pro Pro Pro Pro Lys Leu Pro Leu Pro Ala Phe Arg Leu Lys Asn  
210 215 220

Asp Ser Asp Leu Phe Gly Leu Gly Leu Glu Glu Ala Gly Pro Lys Glu  
225 230 235 240

Ser Ser Glu Glu Gly Lys Glu Gly Lys Thr Pro Ser Lys Glu Lys Lys  
245 250 255

Lys Lys Lys Lys Lys Gly Lys Glu Glu Glu Glu Lys Ala Ala Lys Lys  
260 265 270

Lys Ser Lys His Lys Lys Ser Lys Asp Lys Glu Glu Gly Lys Glu Glu  
275 280 285

Arg Arg Arg Arg Xaa Gln Arg Pro Pro Arg Ser Arg Glu Arg Thr Ala  
290 295 300

Ala Asp Glu Leu Glu Ala Phe Leu Gly Gly Gly Ala Arg Ala Ala Ala  
305 310 315 320

Thr Leu Gly Val Ala Thr Thr Arg Ser Ser Arg Pro Ala Trp Ala Val  
325 330 335

Ala Ala Leu Gly Arg Gly Ala Cys Leu Ser Leu Pro Gly Glu Ala Phe  
340 345 350

Ala Ser Val Pro Ser Pro Leu Pro Leu Pro Arg Gly Cys Arg Val Arg  
355 360 365

Phe

&lt;210&gt; 1071

&lt;211&gt; 209

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (179)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (180)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (189)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (202)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (208)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1071

Glu	Arg	Leu	Tyr	Pro	Ala	Val	Val	Val	Gly	Gly	Arg	Ala	Val	Glu	Gln
1				5					10					15	

Gln	His	Arg	Arg	Gly	Ser	Arg	Glu	Ala	Gly	Ser	Ala	Arg	Ala	Glu	Met
		20						25						30	

Trp	Asn	Leu	Leu	His	Glu	Thr	Asp	Ser	Ala	Val	Ala	Thr	Ala	Arg	Arg
		35						40						45	

Pro	Arg	Trp	Leu	Cys	Ala	Gly	Ala	Leu	Val	Leu	Ala	Gly	Gly	Phe	Phe
		50				55						60			

Leu	Leu	Gly	Phe	Leu	Phe	Gly	Trp	Phe	Ile	Lys	Ser	Ser	Asn	Glu	Ala
65					70					75					80

Thr Asn Ile Thr Pro Lys His Asn Met Lys Ala Phe Leu Asp Glu Leu  
                             85                            90                            95  
 Lys Ala Glu Asn Ile Lys Lys Phe Leu Tyr Asn Phe Thr Gln Ile Pro  
                             100                            105                            110  
 His Leu Ala Gly Thr Glu Gln Asn Phe Gln Leu Ala Lys Gln Ile Gln  
                             115                            120                            125  
 Ser Gln Trp Lys Glu Phe Gly Leu Asp Ser Val Glu Leu Ala His Tyr  
                             130                            135                            140  
 Asp Val Leu Leu Ser Tyr Pro Asn Lys Thr His Pro Asn Tyr Ile Ser  
                             145                            150                            155                            160  
 Ile Ile Asn Glu Asp Gly Asn Glu Ile Phe Asn Thr Ser Leu Phe Glu  
                             165                            170                            175  
 Pro Pro Xaa Xaa Gly Tyr Glu Asn Gly Ser Asp Ile Xaa Pro Pro Phe  
                             180                            185                            190  
 Ser Ala Phe Ser Pro Gln Gly Met Pro Xaa Gly Asp Leu Val Tyr Xaa  
                             195                            200                            205

Asn

<210> 1072  
 <211> 135  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (87)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (94)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (113)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1072  
 Leu Gln Gly Leu Leu Ile Asn Pro Leu Thr Leu Ser Pro Ser Asn Thr

1                      5                      10                      15  
 Val Ser Gln Ser Leu Phe Phe Trp Leu Gly Phe Tyr Ile Lys Leu Ser  
                     20                      25                      30  
 Ile Leu Ser Asn Asp Leu Ser Leu Leu Pro Phe Leu Leu His Ile Pro  
                     35                      40                      45  
 Ile Lys Thr Phe Phe Val Phe Asn Ser Cys His Leu Asp Ser Arg Thr  
                     50                      55                      60  
 Ser Ser Ile Pro His Val Cys Ser Leu Leu Cys Gln Pro Arg Pro Phe  
                     65                      70                      75                      80  
 Leu Tyr Pro Pro Ala Trp Xaa Cys Cys Pro Leu Cys Ser Xaa Leu Thr  
                     85                      90                      95  
 Arg Tyr Lys Glu His Glu Asp Gly Tyr Met Arg Leu Gln Leu Val Arg  
                     100                      105                      110  
 Xaa Glu Ser Val Glu Leu Thr Gln Gln Leu Leu Arg Gln Pro Gln Glu  
                     115                      120                      125  
 Gly Ser Gly Trp Glu Arg Arg  
                     130                      135

<210> 1073  
 <211> 135  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (48)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (127)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1073  
 Pro Ser Asp Val Asn Val Met Ala Glu Ser Leu Lys Asp Met Glu Ala  
                     1                      5                      10                      15

Asp Ala Gln Lys Leu Tyr Gln Leu Ile Trp Arg Gln Phe Val Ala Cys  
                     20                      25                      30

Gln Met Thr Pro Ala Lys Tyr Asp Ser Thr Thr Leu Thr Val Gly Xaa

35

40

45

Gly Asp Phe Arg Leu Lys Ala Arg Gly Arg Ile Leu Arg Phe Asp Gly  
50 55 60

Trp Thr Lys Val Met Pro Ala Leu Arg Lys Gly Asp Glu Asp Arg Ile  
65 70 75 80

Leu Pro Ala Val Asn Lys Gly Asp Ala Leu Thr Leu Val Glu Leu Thr  
85 90 95

Pro Ala Gln His Phe Thr Lys Pro Pro Ala Arg Phe Ser Glu Ala Ser  
100 105 110

Leu Val Lys Glu Leu Glu Lys Arg Gly Ile Gly Arg Pro Ser Xaa Tyr  
115 120 125

Ala Ser Ile Ile Ser Thr Ile  
130 135

&lt;210&gt; 1074

&lt;211&gt; 410

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (14)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (177)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (248)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (300)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (372)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1074

Arg Asn Lys Arg Glu Glu Lys Lys Ala Gln Asn Ser Glu Xaa Arg Met  
 1 5 10 15

Lys Arg Ala Gln Xaa Tyr Asp Ser Ser Phe Pro Asn Trp Glu Phe Ala  
 20 25 30

Arg Met Ile Lys Glu Phe Arg Ala Thr Leu Glu Cys His Pro Leu Thr  
 35 40 45

Met Thr Asp Pro Ile Glu Glu His Arg Ile Cys Val Cys Val Arg Lys  
 50 55 60

Arg Pro Leu Asn Lys Gln Glu Leu Ala Lys Lys Glu Ile Asp Val Ile  
 65 70 75 80

Ser Ile Pro Ser Lys Cys Leu Leu Leu Val His Glu Pro Lys Leu Lys  
 85 90 95

Val Asp Leu Thr Lys Tyr Leu Glu Asn Gln Ala Phe Cys Phe Asp Phe  
 100 105 110

Ala Phe Asp Glu Thr Ala Ser Asn Glu Val Val Tyr Arg Phe Thr Ala  
 115 120 125

Arg Pro Leu Val Gln Thr Ile Phe Glu Gly Gly Lys Ala Thr Cys Phe  
 130 135 140

Ala Tyr Gly Gln Thr Gly Ser Gly Lys Thr His Thr Met Gly Gly Asp  
 145 150 155 160

Leu Ser Gly Lys Ala Gln Asn Ala Ser Lys Gly Ile Tyr Ala Met Ala  
 165 170 175

Xaa Arg Asp Val Phe Leu Leu Lys Asn Gln Pro Cys Tyr Arg Lys Leu  
 180 185 190

Gly Leu Glu Val Tyr Val Thr Phe Phe Glu Ile Tyr Asn Gly Lys Leu  
 195 200 205

Phe Asp Leu Leu Asn Lys Lys Ala Lys Leu Arg Val Leu Glu Asp Gly  
 210 215 220

Lys Gln Gln Val Gln Val Val Gly Leu Gln Glu His Leu Val Asn Ser  
 225 230 235 240



Ala Asp Asp Val Ile Lys Met Xaa Asp Met Gly Ser Ala Cys Arg Thr  
245 250 255

Ser Gly Gln Thr Phe Ala Asn Ser Asn Ser Ser Arg Ser His Ala Cys  
260 265 270

Phe Gln Ile Ile Leu Arg Ala Lys Gly Arg Met His Gly Lys Phe Ser  
275 280 285

Leu Val Asp Leu Ala Gly Asn Glu Arg Gly Ala Xaa Thr Ser Ser Ala  
290 295 300

Asp Arg Gln Thr Arg Met Glu Gly Ala Glu Ile Asn Lys Ser Leu Leu  
305 310 315 320

Ala Leu Lys Glu Cys Ile Arg Ala Leu Gly Gln Asn Lys Ala His Thr  
325 330 335

Pro Phe Arg Glu Ser Lys Leu Thr Gln Val Leu Arg Asp Ser Phe Ile  
340 345 350

Gly Glu Asn Ser Arg Thr Cys Met Ile Ala Thr Ile Ser Pro Gly Ile  
355 360 365

Ser Ser Cys Xaa Ile Tyr Phe Lys His Pro Glu Ile Cys Arg Gln Gly  
370 375 380

Gln Gly Ala Glu Pro Pro Gln Trp Ala Gln Trp Arg Ala Val Asp Ser  
385 390 395 400

Asn Gly Asn Arg Arg Asp Gly Ser Leu Leu  
405 410

<210> 1075

<211> 196

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (83)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (167)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1075

Leu Pro Phe Phe Arg Leu Ser Phe Ala Phe Val Leu Arg Gly Phe Arg  
1 5 10 15

Asn Thr Ala Gln Asn Tyr Arg Glu Asn Thr Pro Ala Arg Ala Leu Ser  
20 25 30

Arg Thr Arg Cys Ala Ala Ser Val Trp Leu Ala Ser Ser Ser Gln Phe  
35 40 45

Pro Thr His Arg Leu Arg Ser Ser Asn Ser His Asp Ile Cys Ser Thr  
50 55 60

Arg Arg Arg Ile Arg Cys Arg Val Leu Ala Arg Pro Phe Ser Ser Ala  
65 70 75 80

Cys Cys Xaa His Arg Cys Val Thr Arg Asn Arg Arg Ala Glu Gln His  
85 90 95

Asp Val Arg Phe Gly Glu Leu His Gln Pro Tyr Pro Gln Ala Gly Ala  
100 105 110

Ala Gly Val Ser Arg Gly Arg Gly Glu Ala Ala Val Gly Asp Arg Trp  
115 120 125

Glu Val Gly Arg Pro Gly Leu Gly Gly Ile Leu Gly Ala Gly Glu Glu  
130 135 140

Met Arg Ala Pro Glu Arg Pro Arg Val Arg Arg Arg Arg Leu Glu Pro  
145 150 155 160

Ser Arg Cys Cys Gly Pro Xaa Gly Pro Phe His Phe Ala Cys Lys Thr  
165 170 175

Gln Ile Lys Thr Gln Cys Asp Tyr Ser Glu Leu Phe Cys Leu Lys Lys  
180 185 190

Asn Val Arg Ser  
195

&lt;210&gt; 1076

&lt;211&gt; 31

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1076

Gln Leu Thr Leu Asn Ile Ser Leu Leu Leu Ser Leu Ser Leu Ser Phe  
1 5 10 15

Phe Phe Asn Met Val Lys Leu Asp Gln Gly Ser Glu His Arg Phe  
20 25 30

<210> 1077

<211> 87

<212> PRT

<213> Homo sapiens

<400> 1077

Asn Cys Pro Asn Pro His Leu His Lys Asn Leu Ser Pro Val His Lys  
1 5 10 15

Ala Asp His Glu Ala Ile Ile Phe Leu Glu Gly Phe Leu Ala Cys Ser  
20 25 30

Pro Val Ala Ser Ala Ala Leu Ala Leu Cys His Ser Glu Pro Lys Gly  
35 40 45

Lys Val Met Glu Gln His His Ile Cys Arg Leu Ser Val Leu Phe Gly  
50 55 60

Glu Gly Lys Gly Arg Glu Cys Arg Arg Met Lys Lys Phe Leu Pro Thr  
65 70 75 80

Ala Ser Ile Leu Ile Phe Leu  
85

<210> 1078

<211> 85

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (65)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1078

Pro Asp Gln Gly Gly Asp Glu Gly Ile Leu Ser Ser Arg Thr Cys Arg  
1 5 10 15

Gly Thr Arg Gln Gly Pro His Pro Arg Gly Asp Pro Val Ala Arg His

20                      25                      30  
 Ile Met Gly Thr Ala Gly Trp Pro Gln Ala Ser Ala Pro Leu Leu Pro  
          35                      40                      45  
 Cys Arg Gln Gly Leu Leu Glu Pro Cys Ala His Pro Gly Leu Leu Arg  
          50                      55                      60  
 Xaa Gln Pro Cys Thr Glu Ser Ala Asp Val Pro Cys Leu Xaa Thr Arg  
          65                      70                      75                      80  
 Pro Leu Cys Pro Leu  
                          85

&lt;210&gt; 1079

&lt;211&gt; 594

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (430)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1079

Cys Cys Leu Arg Phe Ser Phe Thr Phe Thr Glu Met Ser Tyr Gly Glu  
          1                      5                      10                      15

Ile Glu Gly Lys Phe Leu Gly Pro Arg Glu Glu Val Thr Ser Glu Pro  
          20                      25                      30

Arg Cys Lys Lys Leu Lys Ser Thr Thr Glu Ser Tyr Val Phe His Asn  
          35                      40                      45

His Ser Asn Ala Asp Phe His Arg Ile Gln Glu Lys Thr Gly Asn Asp  
          50                      55                      60

Trp Val Pro Val Thr Ile Ile Asp Val Arg Gly His Ser Tyr Leu Gln  
          65                      70                      75                      80

Glu Asn Lys Ile Lys Thr Thr Asp Leu His Arg Pro Leu His Asp Glu  
                          85                      90                      95

Met Pro Gly Asn Arg Pro Asp Val Ile Glu Ser Ile Asp Ser Gln Val  
          100                      105                      110

Leu Gln Glu Ala Arg Pro Pro Leu Val Ser Ala Asp Asp Glu Ile Tyr  
          115                      120                      125

Ser Thr Ser Lys Ala Phe Ile Gly Pro Ile Tyr Lys Pro Pro Glu Lys  
130 135 140

Lys Lys Arg Asn Glu Gly Arg Asn Glu Ala His Val Leu Asn Gly Ile  
145 150 155 160

Asn Asp Arg Gly Gly Gln Lys Glu Lys Gln Lys Phe Asn Ser Glu Lys  
165 170 175

Ser Glu Ile Asp Asn Glu Leu Phe Gln Phe Tyr Lys Glu Ile Glu Glu  
180 185 190

Leu Glu Lys Glu Lys Asp Gly Phe Glu Asn Ser Cys Lys Glu Ser Glu  
195 200 205

Pro Ser Gln Glu Gln Phe Val Pro Phe Tyr Glu Gly His Asn Asn Gly  
210 215 220

Leu Leu Lys Pro Asp Glu Glu Lys Lys Asp Leu Ser Asn Lys Ala Met  
225 230 235 240

Pro Ser His Cys Asp Tyr Gln Gln Asn Leu Gly Asn Glu Pro Asp Lys  
245 250 255

Tyr Pro Cys Asn Gly Gln Val Ile Pro Thr Phe Cys Asp Thr Ser Phe  
260 265 270

Thr Ser Phe Arg Pro Glu Trp Gln Ser Val Tyr Pro Phe Ile Val Pro  
275 280 285

Tyr Gly Pro Pro Leu Pro Ser Leu Asn Tyr His Leu Asn Ile Gln Arg  
290 295 300

Phe Ser Gly Pro Pro Asn Pro Pro Ser Asn Ile Phe Gln Ala Gln Asp  
305 310 315 320

Asp Ser Gln Ile Gln Asn Gly Tyr Tyr Val Asn Asn Cys His Val Asn  
325 330 335

Trp Asn Cys Met Thr Phe Asp Gln Asn Asn Glu Tyr Thr Asp Cys Ser  
340 345 350

Glu Asn Arg Ser Ser Val His Pro Ser Gly Asn Gly Cys Ser Met Gln  
355 360 365

Asp Arg Tyr Val Ser Asn Gly Phe Cys Glu Val Arg Glu Arg Cys Trp  
370 375 380

Lys Asp His Cys Met Asp Lys His Asn Gly Thr Asp Arg Phe Val Asn  
385 390 395 400

Gln Gln Phe Gln Glu Glu Lys Leu Asn Lys Leu Gln Lys Leu Leu Ile  
405 410 415

Leu Leu Arg Gly Leu Pro Gly Ser Gly Lys Thr Thr Leu Xaa Arg Ile  
420 425 430

Leu Leu Gly Gln Asn Arg Asp Gly Ile Val Phe Ser Thr Asp Asp Tyr  
435 440 445

Phe His His Gln Asp Gly Tyr Arg Tyr Asn Val Asn Gln Leu Gly Asp  
450 455 460

Ala His Asp Trp Asn Gln Asn Arg Ala Lys Gln Ala Ile Asp Gln Gly  
465 470 475 480

Arg Ser Pro Val Ile Ile Asp Asn Thr Asn Ile Gln Ala Trp Glu Met  
485 490 495

Lys Pro Tyr Val Glu Val Ala Ile Gly Lys Gly Tyr Arg Val Glu Phe  
500 505 510

His Glu Pro Glu Thr Trp Trp Lys Phe Asp Pro Glu Glu Leu Glu Lys  
515 520 525

Arg Asn Lys His Gly Val Ser Arg Lys Lys Ile Ala Gln Met Leu Asp  
530 535 540

Arg Tyr Glu Tyr Gln Met Ser Ile Ser Ile Val Met Asn Ser Val Glu  
545 550 555 560

Pro Ser His Lys Ser Thr Gln Arg Pro Pro Pro Pro Gln Gly Arg Gln  
565 570 575

Arg Trp Gly Gly Ser Leu Gly Ser His Asn Arg Val Cys Val Thr Asn  
580 585 590

Asn His

<210> 1080

<211> 61

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (55)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (59)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1080

Leu His Ile Lys Ile Leu Gln Ile Glu Lys Tyr Ile Lys Tyr Ala Met  
 1 5 10 15

Gly Leu Thr Phe Tyr Gln Asn Ser His Met Ile Ser Phe Ile Ser Ser  
 20 25 30

Gly Ser Phe Arg Val Pro Ile Ala Leu Pro Ile Phe Thr Tyr Phe Ile  
 35 40 45

Asn Leu His Xaa Gly Ile Xaa Ser Leu Phe Xaa Phe Phe  
 50 55 60

&lt;210&gt; 1081

&lt;211&gt; 302

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1081

Ala Pro Pro Ala Leu Leu Glu Ala Glu Val Cys Leu Leu Arg Val Gly  
 1 5 10 15

Pro Glu Ala Trp Ser Phe Ser Ala Ser Leu Thr Pro Val Ala Leu Gly  
 20 25 30

Ser Ala Leu Ala Tyr Arg Ser His Gly Val Leu Asp Pro Arg Leu Leu  
 35 40 45

Val Gly Cys Ala Val Ala Val Leu Ala Val His Gly Ala Gly Asn Leu  
 50 55 60

Val Asn Thr Tyr Tyr Asp Phe Ser Lys Gly Ile Asp His Lys Lys Ser  
 65 70 75 80

Asp Asp Arg Thr Leu Val Asp Arg Ile Leu Glu Pro Gln Asp Val Val  
 85 90 95

Arg Phe Gly Val Phe Leu Tyr Thr Leu Gly Cys Val Cys Ala Ala Cys  
 100 105 110

Leu Tyr Tyr Leu Ser Pro Leu Lys Leu Glu His Leu Ala Leu Ile Tyr  
 115 120 125

Phe Gly Gly Leu Ser Gly Ser Phe Leu Tyr Thr Gly Gly Ile Gly Phe  
 130 135 140

Lys Tyr Val Ala Leu Gly Asp Leu Ile Ile Leu Ile Thr Phe Gly Pro  
 145 150 155 160

Leu Ala Val Met Phe Ala Tyr Ala Ile Gln Val Gly Ser Leu Ala Ile  
 165 170 175

Phe Pro Leu Val Tyr Ala Ile Pro Leu Ala Leu Ser Thr Glu Ala Ile  
 180 185 190

Leu His Ser Asn Asn Thr Arg Asp Met Glu Ser Asp Arg Glu Ala Gly  
 195 200 205

Ile Val Thr Leu Ala Ile Leu Ile Gly Pro Thr Phe Ser Tyr Ile Leu  
 210 215 220

Tyr Asn Thr Leu Leu Phe Leu Pro Tyr Leu Val Phe Ser Ile Leu Ala  
 225 230 235 240

Thr His Cys Thr Ile Ser Leu Ala Leu Pro Leu Leu Thr Ile Pro Met  
 245 250 255

Ala Phe Ser Leu Glu Arg Gln Phe Arg Ser Gln Ala Phe Asn Lys Leu  
 260 265 270

Pro Gln Arg Thr Ala Lys Leu Asn Leu Leu Leu Gly Leu Phe Tyr Val  
 275 280 285

Phe Gly Ile Ile Leu Ala Pro Ala Gly Ser Leu Pro Lys Ile  
 290 295 300

<210> 1082

<211> 68

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE



<222> (58)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1082

Gln Asp Val Ser Glu Met Asp Val Xaa Phe Leu Leu Ile Gln Leu Ser  
1 5 10 15  
Cys Tyr Phe Ser Ser Gly Ser Cys Gly Lys Val Leu Val Trp Pro Thr  
20 25 30  
Glu Tyr Ser His Trp Ile Asn Met Lys Thr Ile Leu Glu Glu Leu Val  
35 40 45  
Gln Arg Gly His Glu Val Thr Val Val Xaa Ile Xaa Gly Phe Tyr Ser  
50 55 60  
Cys Gln Cys Gln  
65

<210> 1083

<211> 85

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1083

Xaa Pro Pro Gly Gly Gly Arg Ser Arg Thr Ser Gly Ser Pro Gly Leu  
1 5 10 15  
Gln Val Arg Ala Ile Arg Leu Ala Leu Glu Gly Val Asp Val Lys Leu  
20 25 30  
Glu Gln Ala Ala Arg Thr Leu Gly Ala Gly Arg Trp Arg Val Phe Phe  
35 40 45  
Thr Ile Thr Leu Pro Leu Thr Leu Pro Gly Ile Ile Val Gly Thr Val  
50 55 60  
Leu Ala Phe Ala Arg Ser Leu Gly Glu Phe Gly Ala His His Leu Cys  
65 70 75 80

Val Glu His Ser Trp  
85

<210> 1084

<211> 166

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (130)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (131)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (146)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (159)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (163)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1084

Pro	Pro	Ser	Ala	Ser	Ser	Val	Ala	Gly	Asp	Leu	Gly	Arg	Gly	Thr	Arg
1				5						10				15	

Thr	Glu	Val	Glu	Ala	Arg	Ala	Ala	Arg	Pro	Gly	Ala	Glu	Ser	Ala	Pro
			20					25					30		

Ala	Ala	Ala	Met	Pro	Asp	Ser	Trp	Asp	Lys	Asp	Val	Tyr	Pro	Glu	Pro
			35					40					45		

Pro Arg Arg Thr Pro Val Gln Pro Asn Pro Ile Val Tyr Met Met Lys  
 50 55 60  
 Ala Phe Asp Leu Ile Val Asp Arg Pro Val Thr Leu Val Arg Glu Phe  
 65 70 75 80  
 Ile Glu Arg Gln His Ala Lys Asn Arg Tyr Tyr Tyr Tyr His Arg Gln  
 85 90 95  
 Tyr Arg Arg Val Pro Asp Ile Thr Glu Cys Lys Glu Glu Asp Ile Met  
 100 105 110  
 Cys Ile Lys Xaa Asp Gln Glu Ile Ile Thr Leu Cys Arg Ile Gly Ser  
 115 120 125  
 Lys Xaa Xaa Ser Arg Gly Lys Asp Arg Leu Pro Ala Asp Cys Ile Lys  
 130 135 140  
 Glu Xaa Glu Gln Leu Pro Arg Trp Pro Arg Leu Pro Gly Thr Xaa Ile  
 145 150 155 160  
 Arg Thr Xaa Gly Pro Thr  
 165

&lt;210&gt; 1085

&lt;211&gt; 392

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (386)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1085

Met Glu Leu Val Ala Gly Cys Tyr Glu Gln Val Leu Phe Gly Phe Ala  
 1 5 10 15  
 Val His Pro Glu Pro Glu Ala Cys Gly Asp His Glu Gln Trp Thr Leu  
 20 25 30  
 Val Ala Asp Phe Thr His His Ala His Thr Ala Ser Leu Ser Ala Val  
 35 40 45  
 Ala Val Asn Ser Arg Phe Val Val Thr Gly Ser Lys Asp Glu Thr Ile  
 50 55 60  
 His Ile Tyr Asp Met Lys Lys Lys Ile Glu His Gly Ala Leu Val His  
 65 70 75 80

His Ser Gly Thr Ile Thr Cys Leu Lys Phe Tyr Gly Asn Arg His Leu  
85 90 95

Ile Ser Gly Ala Glu Asp Gly Leu Ile Cys Ile Trp Asp Ala Lys Lys  
100 105 110

Trp Glu Cys Leu Lys Ser Ile Lys Ala His Lys Gly Gln Val Thr Phe  
115 120 125

Leu Ser Ile His Pro Ser Gly Lys Leu Ala Leu Ser Val Gly Thr Asp  
130 135 140

Lys Thr Leu Arg Thr Trp Asn Leu Val Glu Gly Arg Ser Ala Phe Ile  
145 150 155 160

Lys Asn Ile Lys Gln Asn Ala His Ile Val Glu Trp Ser Pro Arg Gly  
165 170 175

Glu Gln Tyr Val Val Ile Ile Gln Asn Lys Ile Asp Ile Tyr Gln Leu  
180 185 190

Asp Thr Ala Ser Ile Ser Gly Thr Ile Thr Asn Glu Lys Arg Ile Ser  
195 200 205

Ser Val Lys Phe Leu Ser Glu Ser Val Leu Ala Val Ala Gly Asp Glu  
210 215 220

Glu Val Ile Arg Phe Phe Asp Cys Asp Ser Leu Val Cys Leu Cys Glu  
225 230 235 240

Phe Lys Ala His Glu Asn Arg Val Lys Asp Met Phe Ser Phe Glu Ile  
245 250 255

Pro Glu His His Val Ile Val Ser Ala Ser Ser Asp Gly Phe Ile Lys  
260 265 270

Met Trp Lys Leu Lys Gln Asp Lys Lys Val Pro Pro Ser Leu Leu Cys  
275 280 285

Glu Ile Asn Thr Asn Ala Arg Leu Thr Cys Leu Gly Val Trp Leu Asp  
290 295 300

Lys Val Ala Asp Met Lys Glu Ser Leu Pro Pro Ala Ala Glu Pro Ser  
305 310 315 320

Pro Val Ser Lys Glu Gln Ser Lys Ile Gly Lys Lys Glu Pro Gly Asp  
325 330 335

Thr Val His Lys Glu Glu Lys Arg Ser Lys Pro Asn Thr Lys Lys Arg  
340 345 350

Gly Leu Thr Gly Asp Ser Lys Lys Ala Thr Lys Glu Ser Gly Leu Ile  
 355 360 365

Ser Thr Lys Lys Arg Lys Met Val Glu Met Leu Glu Lys Lys Arg Lys  
 370 375 380

Lys Xaa Lys Ile Lys Thr Met Gln  
 385 390

<210> 1086

<211> 238

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (122)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1086

Ala Gly Thr Met His Gly Arg Leu Lys Val Lys Thr Ser Glu Glu Gln  
 1 5 10 15

Ala Glu Ala Lys Arg Leu Glu Arg Glu Gln Lys Leu Lys Leu Tyr Gln  
 20 25 30

Ser Ala Thr Gln Ala Val Phe Gln Lys Arg Gln Ala Gly Glu Leu Asp  
 35 40 45

Glu Ser Val Leu Glu Leu Thr Ser Gln Ile Leu Gly Ala Asn Pro Asp  
 50 55 60

Phe Ala Thr Leu Trp Asn Cys Arg Arg Glu Val Leu Gln Gln Leu Glu  
 65 70 75 80

Thr Gln Lys Ser Pro Glu Glu Leu Ala Ala Leu Val Lys Ala Glu Leu  
 85 90 95

Gly Phe Leu Glu Ser Cys Leu Arg Val Asn Pro Lys Ser Tyr Gly Thr  
 100 105 110

Trp His His Arg Cys Trp Leu Leu Gly Xaa Leu Pro Glu Pro Asn Trp  
 115 120 125

Thr Arg Glu Leu Glu Leu Cys Ala Arg Phe Leu Glu Val Asp Glu Arg  
 130 135 140

Asn Phe His Cys Trp Asp Tyr Arg Arg Phe Val Ala Thr Gln Ala Ala

145                      150                      155                      160  
 Val Pro Pro Ala Glu Glu Leu Ala Phe Thr Asp Ser Leu Ile Thr Arg  
                          165                      170                      175  
 Asn Phe Ser Asn Tyr Ser Ser Trp His Tyr Arg Ser Cys Leu Leu Pro  
                          180                      185                      190  
 Gln Leu His Pro Gln Pro Asp Ser Gly Pro Gln Gly Arg Leu Pro Glu  
                          195                      200                      205  
 Asp Val Leu Leu Lys Glu Leu Glu Leu Val Gln Asn Ala Ser Ser Leu  
                          210                      215                      220  
 Thr Pro Met Thr Arg Val Pro Gly Phe Ile Thr Val Gly Ser  
 225                      230                      235

&lt;210&gt; 1087

&lt;211&gt; 79

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (59)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (78)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1087

Leu Pro Ile Gln Ile Ser Leu Glu Leu Asp Arg Cys Phe Arg Gly Ala  
 1                      5                      10                      15

Ala Leu Glu Arg Gly Phe Gly Leu Cys Lys Gly Arg Lys Glu Val Gln  
                          20                      25                      30

Lys Asn Gly Val Gly Gly Ser Ala Gly Arg Leu Leu Lys Cys Gly Arg  
                          35                      40                      45

Trp Lys Leu Gly Gly Glu Ile Lys Gly Thr Xaa Asp Gln Leu Val Cys  
                          50                      55                      60

Ser Tyr Gln Gly Asp Pro Phe Gln Ser Lys Ser His Met Xaa Val  
 65                      70                      75

&lt;210&gt; 1088

&lt;211&gt; 257

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1088

Ile Pro Val His Leu Val Ser Ser Ser Ser Asn Leu Glu Arg Phe Thr  
1 5 10 15

Ser Arg Arg Ala Pro Gly Val Gly Leu Tyr Asn Leu Lys Thr Leu Leu  
20 25 30

Phe Phe Ser Ser Val Gln Trp Val Leu Ile Pro Thr Met Ala Ile Thr  
35 40 45

Gln Phe Arg Leu Phe Lys Phe Cys Thr Cys Leu Ala Thr Val Phe Ser  
50 55 60

Phe Leu Lys Arg Leu Ile Cys Arg Ser Gly Arg Gly Arg Lys Leu Ser  
65 70 75 80

Gly Asp Gln Ile Thr Leu Pro Thr Thr Val Asp Tyr Ser Ser Val Pro  
85 90 95

Lys Gln Thr Asp Val Glu Glu Trp Thr Ser Trp Asp Glu Asp Ala Pro  
100 105 110

Thr Ser Val Lys Ile Glu Gly Gly Asn Gly Asn Val Ala Thr Gln Gln  
115 120 125

Asn Ser Leu Glu Gln Leu Glu Pro Asp Tyr Phe Lys Asp Met Thr Pro  
130 135 140

Thr Ile Arg Lys Thr Gln Lys Ile Val Ile Lys Lys Arg Glu Pro Leu  
145 150 155 160

Asn Phe Gly Ile Pro Asp Gly Ser Thr Gly Phe Ser Ser Arg Leu Ala  
165 170 175

Ala Thr Gln Asp Leu Pro Phe Ile His Gln Ser Ser Glu Leu Gly Asp  
180 185 190

Leu Asp Thr Trp Gln Glu Asn Thr Asn Ala Trp Glu Glu Glu Glu Asp  
195 200 205

Ala Ala Trp Gln Ala Glu Glu Val Leu Arg Gln Gln Lys Leu Ala Asp  
210 215 220

Arg Glu Lys Arg Ala Ala Glu Gln Gln Arg Lys Lys Met Glu Lys Glu  
225 230 235 240

Ala Gln Arg Leu Met Lys Lys Glu Gln Asn Lys Ile Gly Val Lys Leu  
245 250 255

Ser

<210> 1089  
<211> 44  
<212> PRT  
<213> Homo sapiens

<400> 1089  
Asn Ser Ala Arg Ala Asp Leu Arg Ala Ile Asn Ala Asn Leu Asn Glu  
1 5 10 15  
Lys Met Glu Ser Leu Thr Ala Val Ser Val Ser Ser Ile Ser Leu Ser  
20 25 30  
Asn Ser Cys Pro Ser Leu Thr Val Leu Val Ser Val  
35 40

<210> 1090  
<211> 96  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (23)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (85)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1090  
Gly Arg Pro Ala Cys Ala Arg Glu Pro Gly Leu Glu Pro Tyr Leu Gln  
1 5 10 15  
Val Pro Asn Leu Arg Leu Xaa Ser Leu Ser Leu Pro Gln Pro Arg Thr  
20 25 30  
Lys Thr Ser Pro Pro Glu Gly Leu Pro Gln Leu Arg Glu Arg Ser Arg  
35 40 45



Ser Ser Leu Gly Pro Gly Cys Ala Pro Gly Ala Gly Ser Asp Val Val  
 50 55 60

Ser Ser Pro Leu Arg Thr Gly Pro Ala Arg Ser Ser Trp Pro Pro Ser  
 65 70 75 80

Arg Ala Pro Ser Xaa Pro Pro Ser Ser Thr Ala Thr Thr Cys Arg Trp  
 85 90 95

<210> 1091

<211> 131

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1091

Lys Ala Lys Phe Asn Ile Thr Gly Ala Cys Leu Asn Asp Ser Asp Asp  
 1 5 10 15

Asp Ser Pro Asp Leu Asp Leu Asp Gly Asn Glu Ser Xaa Leu Ala Leu  
 20 25 30

Leu Met Ser Asn Gly Xaa Thr Lys Arg Val Lys Ser Leu Ser Lys Ser  
 35 40 45

Arg Arg Thr Lys Ile Ala Lys Lys Val Asp Lys Ala Arg Leu Met Ala  
 50 55 60

Glu Gln Val Met Glu Asp Glu Phe Asp Leu Xaa Ser Asp Xaa Glu Leu  
65 70 75 80

Gln Ile Asp Glu Arg Leu Gly Lys Glu Lys Ala Thr Leu Ile Ile Arg  
85 90 95

Pro Lys Phe Pro Arg Lys Leu Pro Arg Ala Asn Leu Ala Leu Thr Pro  
100 105 110

Thr Glu Phe Val Asn Gln Glu Lys Leu Ser Leu Thr Leu Arg Arg Ile  
115 120 125

Tyr Asn Arg  
130

<210> 1092  
<211> 158  
<212> PRT  
<213> Homo sapiens.

<400> 1092  
Leu Arg Ile Thr Val Leu Leu Thr Ser Phe Leu Met Val Leu Gly Thr  
1 5 10 15

Gly Leu Arg Cys Ile Pro Ile Ser Asp Leu Ile Leu Lys Arg Arg Leu  
20 25 30

Ile His Gly Gly Gln Met Leu Asn Gly Leu Ala Gly Pro Thr Val Met  
35 40 45

Asn Ala Ala Pro Phe Leu Ser Thr Thr Trp Phe Ser Ala Asp Glu Arg  
50 55 60

Ala Thr Ala Thr Ala Ile Ala Ser Met Leu Ser Tyr Leu Gly Gly Ala  
65 70 75 80

Cys Ala Phe Leu Val Gly Pro Leu Val Val Pro Ala Pro Asn Gly Thr  
85 90 95

Ser Pro Leu Leu Ala Ala Glu Ser Ser Arg Ala His Ile Lys Asp Arg  
100 105 110

Ile Glu Ala Val Leu Tyr Ala Glu Phe Gly Val Val Cys Leu Ile Phe  
115 120 125

Ser Ala Thr Leu Ala Tyr Phe Pro Pro Arg Pro Pro Leu Pro Pro Ser  
130 135 140

Val Ala Ala Ala Ser Gln Arg Glu Leu Ser Glu Lys Arg Leu  
 145 150 155

<210> 1093

<211> 235

<212> PRT

<213> Homo sapiens

<400> 1093

Arg Ala Ala Gln Leu Trp Val Trp Glu Gly Val Val Gln Pro Pro Ala  
 1 5 10 15

Ala Trp Gly Gly Pro Trp Ser Ala Ser Arg Cys Gln Gln Gly Lys Gly  
 20 25 30

Gly Val Leu Glu Asn Glu Gly Phe Ile Gly Leu Leu Arg Glu Ala Pro  
 35 40 45

Gln Pro Gln Thr His His Leu Ala Val Asp Thr Cys Val Ser Met Trp  
 50 55 60

Asp Leu Val Leu Ser Ile Ala Leu Ser Val Gly Cys Thr Gly Ala Val  
 65 70 75 80

Pro Leu Ile Gln Ser Arg Ile Val Gly Gly Trp Glu Cys Glu Lys His  
 85 90 95

Ser Gln Pro Trp Gln Val Ala Val Tyr Ser His Gly Trp Ala His Cys  
 100 105 110

Gly Gly Val Leu Val His Pro Gln Trp Val Leu Thr Ala Ala His Cys  
 115 120 125

Leu Lys Lys Asn Ser Gln Val Trp Leu Gly Arg His Asn Leu Phe Glu  
 130 135 140

Pro Glu Asp Thr Gly Gln Arg Val Pro Val Ser His Ser Phe Pro His  
 145 150 155 160

Pro Leu Tyr Asn Met Ser Leu Leu Lys His Gln Ser Leu Arg Pro Asp  
 165 170 175

Glu Asp Ser Ser His Asp Leu Met Leu Leu Arg Leu Ser Glu Pro Ala  
 180 185 190

Lys Ile Thr Asp Val Val Lys Val Leu Gly Leu Pro Pro Arg Ser Gln  
 195 200 205

His Trp Gly Pro Pro Ala Thr Pro Gln Ala Gly Ala Ala Ser Asn Gln

210

215

220

Arg Ser Ser Cys Ala Pro Gly Val Phe Ser Val  
 225 230 235

&lt;210&gt; 1094

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (3)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (4)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1094

Arg Arg Xaa Xaa Gly Arg Thr Asp Thr Ser Arg Ser Thr Ser Gly Glu  
 1 5 10 15

Pro Lys Glu Arg Asp Lys Glu Glu Gly Lys Asp Ser Lys Pro Arg Ser  
 20 25 30

Leu Arg Phe Thr Trp Ser Met Lys Thr Thr Ser Ser Met Asp Pro Asn  
 35 40 45

Asp Met Met Arg Glu Ile Arg Lys Val Leu Asp Ala Asn Asn Cys Asp  
 50 55 60

Tyr Glu Gln Lys Glu Arg Phe Leu Leu Phe Cys Val His Gly Asp Ala  
 65 70 75 80

Arg Gln Asp Ser Leu Val Gln Trp Glu Met Glu Val Cys Lys Leu Pro  
 85 90 95

Arg Leu Ser Leu Asn Gly Val Arg Phe Lys Arg Ile Ser Gly Thr Ser  
 100 105 110

Ile Ala Phe Lys Asn Ile Ala Ser Lys Ile Ala Asn Glu Leu Lys Leu  
 115 120 125

<210> 1095

<211> 214

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (161)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (198)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (206)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1095

Ile Leu Phe Ser Ser Leu Leu Thr Cys Asn Phe Cys Leu Pro Ile Pro  
1 5 10 15

Pro Ser Pro Leu Ser Phe Pro Glu Arg His Leu Gly Ser Tyr Leu Leu  
20 25 30

Asp Ser Glu Asn Thr Ser Gly Ala Leu Pro Arg Leu Pro Gln Thr Pro  
35 40 45

Lys Gln Pro Gln Lys Arg Ser Arg Ala Ala Phe Ser His Thr Gln Val  
50 55 60

Ile Glu Leu Glu Arg Lys Phe Ser His Gln Lys Tyr Leu Ser Ala Pro  
65 70 75 80

Glu Arg Ala His Leu Ala Lys Asn Leu Lys Leu Thr Glu Thr Gln Val  
85 90 95

Lys Ile Trp Phe Gln Asn Arg Arg Tyr Lys Thr Lys Arg Lys Gln Leu  
100 105 110

Ser Ser Glu Leu Gly Asp Leu Glu Lys His Ser Ser Leu Pro Ala Leu  
115 120 125

Lys Glu Arg Pro Ser Pro Gly Pro Pro Trp Ser Pro Cys Ile Thr Ala  
130 135 140

Ile Leu Thr Thr His Thr Cys Thr Ala Trp Ala Val Glu Pro Ser Phe  
145 150 155 160

Xaa Val Met Pro Ala Gln Val Thr Thr Ile Met Ile Lys Asn Cys Leu  
165 170 175

Pro Gln Gly Val Ser Met Lys Ser Thr Arg Gly Gln Gly Gln Gly Ala  
180 185 190

Arg Val Cys Thr Pro Xaa Leu Leu Glu Ile Cys Val Glu Xaa Ser Asp  
195 200 205

Ser Ser Leu Val Arg Gln  
210

<210> 1096  
<211> 62  
<212> PRT  
<213> Homo sapiens

<400> 1096  
Ile Arg His Glu Lys Lys Glu Arg Met Lys Glu Arg Lys Glu Lys Lys  
1 5 10 15

Glu Arg Lys Glu Lys Gly Lys Lys Glu Arg Lys Glu Arg Lys Glu Arg  
20 25 30

Lys Arg Glu Lys Glu Arg Arg Lys Arg Arg Lys Gly Ile Pro Gly Ile  
35 40 45

Tyr His Cys Met Ser Lys Gly Arg Val Val Asp Arg His Ser  
50 55 60

<210> 1097  
<211> 48  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (31)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (36)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (37)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1097

Lys	Lys	His	Trp	Gly	Met	Leu	Gln	Asp	Ile	Gly	Leu	Gly	Lys	Asp	Phe
1				5				10					15		

Leu	Ser	Asn	Thr	Leu	Lys	Gly	Gln	Ala	Thr	Gln	Ala	Lys	Met	Xaa	Xaa
		20					25						30		

Trp	Xaa	Xaa	Xaa	Xaa	Leu	Lys	Asn	Phe	Tyr	Thr	Ala	Lys	Glu	Thr	Lys
	35						40					45			

<210> 1098

<211> 136

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (91)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1098

Asn	Ile	Pro	Leu	Asp	Ser	Glu	Thr	His	Asn	Tyr	Gln	Ile	Val	Asn	His
1				5					10				15		

Asp	Gln	Lys	Leu	Leu	Ile	Thr	Ser	Thr	Thr	Pro	Gln	Trp	Lys	Lys	
		20				25						30			

Asn Arg Val Thr Val Tyr Glu Tyr Asp Thr Arg Glu Asp Gln Trp Ile  
35 40 45

Asn Ile Gly Thr Met Leu Gly Leu Leu Gln Phe Asp Ser Gly Phe Ile  
50 55 60

Cys Leu Cys Ala Arg Val Tyr Pro Ser Cys Leu Glu Pro Gly Gln Ser  
65 70 75 80

Phe Ile Thr Glu Glu Asp Asp Ala Arg Ser Xaa Ser Ser Thr Glu Trp  
85 90 95

Asp Leu Asp Gly Phe Ser Glu Leu Asp Ser Glu Ser Gly Ser Ser Ser  
100 105 110

Ser Phe Ser Asp Asp Glu Val Trp Val Gln Val Ala Pro Gln Arg Asn  
115 120 125

Ala Gln Asp Gln Gln Gly Ser Leu  
130 135

<210> 1099  
<211> 37  
<212> PRT  
<213> Homo sapiens

<400> 1099  
Arg His Glu Arg Lys Val Lys Lys Arg Lys Lys Glu Arg Asn Lys Gln  
1 5 10 15

Thr Lys Gln Leu Ala Tyr Ile Tyr Leu Leu Asn Thr Gly Arg Ser Ile  
20 25 30

His Asn Leu Thr Leu  
35

<210> 1100  
<211> 105  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (104)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1100



Phe Gly Thr Arg Asp Thr Arg Val Lys Glu Arg Gly His Ala Val Ser  
1 5 10 15  
Glu Lys Leu Leu Leu Gly Trp Lys Gly Gln Leu His Lys Gly Cys Ser  
20 25 30  
Cys Arg Gly Ser Pro Ala Ala Arg Cys Leu Leu Thr Val Pro Arg Leu  
35 40 45  
Ser Pro Asp Thr Glu Gly Cys Lys Gly Ser Leu Phe Leu Leu Ser Gly  
50 55 60  
Ile Gly Lys Leu Tyr His Leu Ser Leu Pro Thr Leu Thr Ser Ala Pro  
65 70 75 80  
Ala Thr Leu Ser Leu Trp Leu Leu Leu Thr Phe Ser Pro Leu Ile Phe  
85 90 95  
Ser Pro Asp Gln Val Leu Gly Xaa Ser  
100 105

&lt;210&gt; 1101

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1101

Ser Gly Arg Thr Leu Val Leu Arg Leu Ala Tyr Val Ser Arg Thr Val  
1 5 10 15  
Thr Thr Met Ala Pro Glu Val Leu Pro Lys Pro Arg Met Arg Gly Leu  
20 25 30  
Leu Ala Arg Arg Leu Arg Asn His Met Ala Val Ala Phe Val Leu Ser  
35 40 45  
Leu Gly Val Ala Ala Leu Tyr Lys Phe Arg Val Ala Asp Gln Arg Lys  
50 55 60  
Lys Ala Tyr Ala Asp Phe Tyr Arg Asn Tyr Asp Val Met Lys Asp Phe  
65 70 75 80  
Glu Glu Met Arg Lys Ala Gly Ile Phe Gln Ser Val Lys  
85 90

&lt;210&gt; 1102

&lt;211&gt; 26

<212> PRT  
<213> Homo sapiens

<400> 1102  
Phe Gly Thr Ser Ala Pro Pro Arg Pro Ala Asn Phe Cys Ile Phe Gly  
1 5 10 15

Arg Asp Gly Val Ser Ser Arg Trp Leu Gly  
20 25

<210> 1103  
<211> 51  
<212> PRT  
<213> Homo sapiens

<400> 1103  
Gly Ser Glu Ser Asn Arg Leu Lys Phe Lys Ser Ser Ser Ala Thr Trp  
1 5 10 15

Leu Met Leu Ser Glu Pro Gln Arg Pro Gln Leu Leu Asn Arg Gly Asn  
20 25 30

His Pro His Leu Ser Ser Phe Gly Arg Lys Leu Asn Glu Ile Tyr Trp  
35 40 45

Gly Ser Arg  
50

<210> 1104  
<211> 47  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (21)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (40)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (45)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1104

Lys Arg Tyr Ser Val Leu Ile Leu Cys Lys Lys Xaa Lys Ser Ser Asn  
1 5 10 15

Cys Phe Pro Met Xaa Lys Ile Thr Met Ser Cys Ile Met Leu Leu Ser  
20 25 30

Phe Tyr Val Asn Ile Ser Tyr Xaa Ser Ser Ile Lys Xaa Ile Tyr  
35 40 45

<210> 1105

<211> 72

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (65)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1105

Leu Leu Lys Leu Cys Asn Leu Gln Asn Ile Ala Ile Lys Leu His Thr  
1 5 10 15

Met Phe Ser Ile Ile Leu Ile Asp Leu Pro Tyr Lys His Leu Asn Lys  
20 25 30

Lys Tyr Tyr Leu Met Ile Lys Lys Lys Lys Lys Lys Lys Lys Lys  
35 40 45

Lys Lys Lys Lys Lys Arg Glu Lys Lys Lys Lys Lys Lys Lys Lys  
50 55 60

Xaa Gly Gly Gly Xaa Lys Lys Lys  
65 70

<210> 1106  
<211> 79  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (54)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (57)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (62)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (68)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (74)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1106  
Gly Leu Ser His Ser Asn Ser Ser Tyr Leu Glu Pro Leu Gly Ser Asp  
1 5 10 15  
Val Asp Arg Ala Asn Val Lys Phe Thr Glu Asn Thr Cys Val Phe Arg  
20 25 30  
Thr Leu Lys Gly Thr Ile Arg Ala Cys Phe Pro Ser Leu Tyr Met His  
35 40 45  
Ile Phe Gly Ile Ser Xaa Gly Leu Xaa Asp Val Val Ile Xaa Asn Thr  
50 55 60  
Ala Arg Met Xaa Ala Val Leu Ile His Xaa Gln Lys Arg Gly Gly  
65 70 75

<210> 1107  
<211> 91  
<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (72)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1107

Ile Ile Ala Ala Leu Ser Pro Ile Gln Ile Leu Pro Ser Asp Gly Lys  
1 5 10 15

Asp Gln Phe Ser Cys Gly Asn Ser Val Ala Asp Gln Ala Phe Leu Asp  
20 25 30

Ser Leu Ser Ala Ser Thr Ala Gln Xaa Ser Ser Ser Ala Ala Ser Asn  
35 40 45

Asn His Gln Val Arg Leu Thr Ser Ser Phe Trp Met Trp Leu Ala Leu  
50 55 60

Arg Lys Thr Glu Arg Ile Cys Xaa Arg Leu Val Met His Tyr Ser Tyr  
65 70 75 80

Cys His Ser Pro Lys Ala Lys Thr Lys Ser Leu  
85 90

<210> 1108

<211> 47

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1108

Glu	Val	Ile	Lys	Val	Met	Asn	Thr	Cys	Gln	Cys	Ser	Gly	Phe	Thr	Pro
1				5					10				15		

Val	Leu	Gln	His	Phe	Gly	Glu	Ala	Lys	Ala	Gly	Arg	Ser	Phe	Glu	Pro
			20					25					30		

Gln	Asp	Xaa	Gly	Thr	Thr	Xaa	Gly	Asn	Ile	Val	Arg	Pro	Xaa	Val
		35					40					45		

<210> 1109

<211> 78

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (62)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (66)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (67)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1109

Trp Asn His Leu His Asp Leu Arg Val Ser Arg Asp Leu Leu Ser Arg  
1 5 10 15

Ile Leu Lys Glu His Tyr Lys Phe Arg Glu Lys Ile Asn Ile Leu Ile  
20 25 30

Ile Leu Lys Leu Arg Asn Phe Ser Ser Leu Arg Gly His Lys Val Phe  
35 40 45

Val Val Tyr Thr Ser Asn Lys Ser Ser Ile Phe Xaa Asn Xaa Trp Xaa  
50 55 60

Glu Xaa Xaa Trp Tyr Val Lys Lys Arg Pro Xaa Pro Xaa Gly  
65 70 75

<210> 1110

<211> 62

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (30)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1110

Thr Trp Ser Leu His Lys Ile Gln Lys Leu Arg Trp Ala Trp Trp Cys  
1 5 10 15

Val Pro Ile Val Pro Leu Leu Val Gly Leu Arg Gln Glu Xaa His Leu  
20 25 30

Ser Pro Gly Gly Arg Gly Tyr Ser Xaa Pro Arg Val His Tyr Cys Thr  
35 40 45

Pro Ala Arg Ala Arg Glu Arg Asp Pro Val Ser Ile Asn Lys  
50 55 60

<210> 1111  
 <211> 44  
 <212> PRT  
 <213> Homo sapiens

<400> 1111  
 Phe Met Asn Leu Phe Pro Gly Lys Pro Tyr Asp Ser Thr Val Lys Gly  
 1 5 10 15  
 Val Arg Ile Val Lys Met Val Phe Ser Asp Gln Val Cys Ala His Ala  
 20 25 30  
 Trp Pro Trp Ile Asp Ser Glu Met Arg Phe Phe Val  
 35 40

<210> 1112  
 <211> 263  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (19)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1112  
 Gly Arg Ala Ile Met Ala Ala Ser Arg Leu Glu Leu Asn Leu Val Arg  
 1 5 10 15  
 Leu Leu Xaa Arg Cys Glu Ala Met Ala Ala Glu Lys Arg Asp Pro Asp  
 20 25 30  
 Glu Trp Arg Leu Glu Lys Tyr Val Gly Ala Leu Glu Asp Met Leu Gln  
 35 40 45  
 Ala Leu Lys Val His Ala Ser Lys Pro Ala Ser Glu Val Ile Asn Glu  
 50 55 60  
 Tyr Ser Trp Lys Val Asp Phe Leu Lys Gly Met Leu Gln Ala Glu Lys  
 65 70 75 80  
 Leu Thr Ser Ser Ser Glu Lys Ala Leu Ala Asn Gln Phe Leu Ala Pro  
 85 90 95  
 Gly Arg Val Pro Thr Thr Ala Arg Glu Arg Val Pro Ala Thr Lys Thr  
 100 105 110  
 Val His Leu Gln Ser Arg Ala Arg Tyr Thr Ser Glu Met Arg Ser Glu  
 115 120 125



Leu Leu Gly Thr Asp Ser Ala Glu Pro Glu Met Asp Val Arg Lys Arg  
130 135 140

Thr Gly Val Ala Gly Ser Gln Pro Val Ser Glu Lys Gln Ser Ala Ala  
145 150 155 160

Glu Leu Asp Leu Val Leu Gln Arg His Gln Asn Leu Gln Glu Lys Leu  
165 170 175

Ala Glu Glu Met Leu Gly Leu Ala Arg Ser Leu Lys Thr Asn Thr Leu  
180 185 190

Ala Ala Gln Ser Val Ile Lys Lys Asp Asn Gln Thr Leu Ser His Ser  
195 200 205

Leu Lys Met Ala Asp Gln Asn Leu Glu Lys Leu Lys Thr Glu Ser Glu  
210 215 220

Arg Leu Glu Gln His Thr Gln Lys Ser Val Asn Trp Leu Leu Trp Ala  
225 230 235 240

Met Leu Ile Ile Val Cys Phe Ile Phe Ile Ser Met Ile Leu Phe Ile  
245 250 255

Arg Ile Met Pro Lys Leu Lys  
260

<210> 1113

<211> 40

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (4)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (5)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (37)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1113

Xaa Ala Xaa Xaa Xaa Trp Pro Pro Pro Lys Gly Asn Lys Ser Trp Ser  
1 5 10 15

Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys  
20 25 30

Arg Gln Lys Gly Xaa Phe Lys Ile  
35 40

<210> 1114

<211> 125

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1114

Arg Lys Arg Leu Ala Phe Trp Thr Thr Gly Ile Arg Asp Trp Leu Thr  
1 5 10 15

Trp Arg Thr His Ser Val Cys Ala Glu Xaa Arg Ala Leu Thr Ser Ala  
20 25 30

Glu Ala Glu Val Gly Ala Cys Pro Arg Gly Leu Thr Arg Phe Ala Ser  
35 40 45

Arg Pro Gln Pro Leu His Leu Leu Lys Ala Gln Glu Met Ile Arg Leu  
50 55 60

Lys His Pro Pro Ile Leu Leu Phe Cys Leu Gly Trp Lys Thr Trp Pro  
65 70 75 80

Arg Ser Trp Arg Pro Leu Leu His Leu Pro Asp Ser Gln Glu Ser Ser  
85 90 95

Asp Gln Ser Cys Arg Thr Leu Leu Leu Pro Leu Ala Leu Leu Pro Phe

100 105 110

Ser Ser Ser Trp Gly Pro Ser Leu Val Pro His Ser Leu  
115 120 125

<210> 1115  
<211> 109  
<212> PRT  
<213> Homo sapiens

<400> 1115  
Ile Asp Lys Arg Val Pro Cys Asn Gln Leu Lys Ser Val Leu Cys Val  
1 5 10 15  
Cys Phe Val Ser Gly Ala Glu Tyr Asp Asn Leu Pro Thr Val Pro Leu  
20 25 30  
Phe Glu Val Gly Leu Ala Leu Glu Ser Tyr Cys Lys Cys Leu Ala Cys  
35 40 45  
Met Ile Val Pro Gly His Pro Thr Leu Glu Phe Ala Pro Ser Cys Phe  
50 55 60  
Ser Glu Asp Ala Val Asn Arg Phe Arg Phe Tyr Cys Leu Trp Ile Trp  
65 70 75 80  
Gly Val Thr Val Ala Leu Phe Thr Phe Leu Ile Lys Ile His Met Lys  
85 90 95  
Thr Arg Lys Lys Trp Leu Phe Leu Pro Arg Leu Cys Thr  
100 105

<210> 1116  
<211> 42  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (5)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1116

Gln Xaa Glu Leu Xaa Leu Lys Lys Lys Lys Lys Ile Ile Cys Lys Ile  
1 5 10 15

Asn Ser Gly Ile Val Val Leu Phe Lys Glu Met Phe Cys Lys Leu Ser  
20 25 30

Ser His Tyr Ile Ile Phe Ile Val Leu Ser  
35 40

&lt;210&gt; 1117

&lt;211&gt; 62

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1117

Lys Xaa Ala Thr Pro Arg Pro Pro Gly Glu Thr Arg Pro Arg Met Pro  
1 5 10 15

Arg Leu Phe Leu Phe His Leu Leu Glu Phe Cys Leu Leu Leu Asn Gln  
20 25 30

Phe Ser Arg Ala Val Ala Ala Lys Trp Lys Asp Asp Val Ile Lys Leu  
35 40 45

Cys Gly Arg Glu Leu Val Arg Ala Gln Ile Ala Ile Leu Gly  
50 55 60

&lt;210&gt; 1118

&lt;211&gt; 80

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (45)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (80)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1118

Pro Ser Val Glu Trp Glu Gln Gly His Ser Glu Arg Ala Glu Ser Pro  
1 5 10 15

His Pro Pro Thr Leu Gln Gln Ala Ala Ala Gly Arg Leu Val Asn Cys  
20 25 30

Arg Ala Gly Thr Gln Gln Gln Ala Ala Gly Thr Pro Xaa Leu Leu Gln  
35 40 45

Leu Met Ala Val Cys Leu Ser Gln Asp Leu Glu Lys Thr Arg Leu Val  
50 55 60

Tyr Glu Arg Ile Thr Ile Gly Thr Leu Phe Met Ser Phe Met Asn Xaa  
65 70 75 80

&lt;210&gt; 1119

&lt;211&gt; 73

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1119

Thr Gln Gln Ser Val Pro Val Ile Val His Pro Gly Val Ala Leu Leu  
1 5 10 15

Ile Pro Ser Gly Met Tyr Leu Pro Ser Glu Leu His Phe Phe Lys Met  
20 25 30

Leu Trp Val Val Gly Trp Glu Thr Ile Leu Gln Pro Ser Ser Asp Leu  
35 40 45

Ile Asn Ser Leu Arg Asp Cys Lys Ala Glu Ser Thr Ser Gly His Ser  
50 55 60

Trp Glu Thr Asp Pro Leu Val Met Lys  
65 70

&lt;210&gt; 1120

&lt;211&gt; 77

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

<221> SITE  
<222> (40)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (49)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (53)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (57)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (58)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (63)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1120  
Thr Ser Ser Ser Tyr Ser Asp Lys Gln Asp Thr Pro Pro His Pro Thr  
1 5 10 15  
Cys Ser Ile Ser Leu Ser Pro Leu Pro Gln Thr His Leu His Cys Ser  
20 25 30  
Ser Cys Arg Gly Ser Arg Lys Xaa Ile Leu Lys Ile Thr Arg Val Gly  
35 40 45  
Xaa Gly Ala Val Xaa Ser Gly Cys Xaa Xaa Gln His Phe Gly Xaa Gly  
50 55 60  
Pro Gly Lys Ala Val His Phe Gly Val Lys Gly Phe Leu  
65 70 75

<210> 1121  
<211> 66  
<212> PRT  
<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1121

Pro Xaa Leu Tyr Tyr Val Lys Leu Pro Ile Lys Tyr Phe Tyr Asp Tyr  
1 5 10 15

Arg Phe Cys Ile Phe Val Tyr Asn Tyr Leu Lys Ser Phe Met Leu Tyr  
20 25 30

Leu Glu Phe Gln Pro Arg Asn His Thr Val Leu Lys Phe Ser Trp Gly  
35 40 45

Leu Leu Leu Ser Leu Asn His Leu Leu Asn Ile Tyr Leu Pro Lys Gly  
50 55 60

Asp Phe  
65

&lt;210&gt; 1122

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1122

Ser Gln His Phe Gly Asn Ala Glu Val Ser Gly Ser Pro Glu Val Arg  
1 5 10 15

Ser Ser Arg Pro Ala Trp Ala Asn Met Val Lys Pro His Phe Leu Leu  
20 25 30

Lys Lys Lys Lys Leu Gly Gly Gly Xaa  
35 40

&lt;210&gt; 1123

&lt;211&gt; 45

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (16)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1123

Lys Lys Lys Lys Gly Cys Thr Lys Ile Ser Phe Xaa Gln Arg Leu Xaa  
1 5 10 15

Lys Arg Lys Lys Lys Arg Asn Thr Cys Val Leu Lys Thr Ile Cys Ile  
20 25 30

Phe Ser Phe Leu Asp His Thr Val Ala Asn Tyr Cys Tyr  
35 40 45

&lt;210&gt; 1124

&lt;211&gt; 227

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (27)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (38)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1124

Arg Leu Pro Arg Asn Ile Thr Pro Glu Trp Leu Gln Pro Arg Arg Pro  
1 5 10 15

Gly Val Pro Cys Phe Trp Ile Gln Phe Ser Xaa Val His Gly Phe Pro  
20 25 30

Lys Glu Trp Ser Cys Xaa Phe Phe Gly Ile Val Asn Ile Leu Leu Lys  
35 40 45

Tyr Gly Ala Gln Ile Asn Glu Leu His Leu Ala Tyr Cys Leu Lys Tyr  
50 55 60

Glu Lys Phe Ser Ile Phe Arg Tyr Phe Leu Arg Lys Gly Cys Ser Leu



65                                      70                                      75                                      80  
 Gly Pro Trp Asn His Ile Tyr Glu Phe Val Asn His Ala Ile Lys Ala  
    85                                      90                                      95  
 Gln Ala Lys Tyr Lys Glu Trp Leu Pro His Leu Leu Val Ala Gly Phe  
    100                                      105                                      110  
 Asp Pro Leu Ile Leu Leu Cys Asn Ser Trp Ile Asp Ser Val Ser Ile  
    115                                      120                                      125  
 Asp Thr Leu Ile Phe Thr Leu Glu Phe Thr Asn Trp Lys Thr Leu Ala  
    130                                      135                                      140  
 Pro Ala Val Glu Arg Met Leu Ser Ala Arg Ala Ser Asn Ala Trp Ile  
 145                                      150                                      155                                      160  
 Leu Gln Gln His Ile Ala Thr Val Pro Ser Leu Thr His Leu Cys Arg  
    165                                      170                                      175  
 Leu Glu Ile Arg Ser Ser Leu Lys Ser Glu Arg Leu Arg Ser Asp Ser  
    180                                      185                                      190  
 Tyr Ile Ser Gln Leu Pro Leu Pro Arg Ser Leu His Asn Tyr Leu Leu  
    195                                      200                                      205  
 Tyr Glu Asp Val Leu Arg Met Tyr Glu Val Pro Glu Leu Ala Ala Ile  
    210                                      215                                      220

Gln Asp Gly  
225

<210> 1125  
 <211> 74  
 <212> PRT  
 <213> Homo sapiens

<400> 1125  
 Asn Val Ala Cys Asn Thr Val Leu Pro Ala Lys Phe Ser Thr Phe Cys  
   1                                      5                                      10                                      15  
 Asn Leu Phe Tyr Phe Phe Gly Cys Lys Ala Phe Leu Leu Ser Ile Val  
    20                                      25                                      30  
 Ile Leu Tyr Met Phe Cys Pro Ser Cys Ile Val Met Phe Gln Ser Ile  
    35                                      40                                      45  
 Ile Gln Leu Trp Leu Leu Lys Ser Tyr Ser Cys Glu Asp Leu Pro Leu  
    50                                      55                                      60

Phe Leu Leu Asp Cys Phe Ser Val Leu Tyr  
 65 70

<210> 1126  
 <211> 44  
 <212> PRT  
 <213> Homo sapiens

<400> 1126  
 Ile Ser Ser Thr Pro Ser Leu Thr Gln Ile Leu Val Phe Ile Met Asp  
 1 5 10 15  
 Phe Phe Phe Lys Leu Val Tyr Leu Ile Leu Ser Phe His Phe Trp Gln  
 20 25 30  
 His Met Asp Asp Phe Ile Phe Asn Asn His Ile Ser  
 35 40

<210> 1127  
 <211> 38  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (11)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (15)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (35)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1127  
 Leu Ser Pro Phe Glu Ala Ser Thr Asp Trp Xaa Lys Gln Ile Xaa Lys  
 1 5 10 15  
 Trp Asp Val Thr Gly Leu Ile Ser Thr Asn Arg Leu Phe Thr Thr Pro  
 20 25 30

Ser Trp Xaa Pro Val Ser

35

&lt;210&gt; 1128

&lt;211&gt; 70

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1128

Gly Thr Glu Cys Thr His Gly Lys Lys Pro Cys Phe Val Phe Cys Ser  
1 5 10 15

Leu Phe Phe Leu Ser Pro Phe Leu Ser Phe Met Ala Gly Asp Met Ile  
20 25 30

Tyr Cys Ser His Pro Ser Trp Gly Leu Ile His His Thr Arg Val Ala  
35 40 45

Arg Arg Leu Trp Gln Gln Leu Phe Ala Leu Asn Gln Thr Glu Lys Leu  
50 55 60

Ser Ile Ile Lys Gly Arg  
65 70

&lt;210&gt; 1129

&lt;211&gt; 50

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1129

His Leu Pro Leu Ser Glu Thr His Ser Pro Ile Leu Asn Ala Tyr Ala  
1 5 10 15

Val Gly Tyr His Leu Pro Leu Glu Val Leu Glu Ala Ile Ser Cys Arg  
20 25 30

Ser Arg Val Ala Met Gly Leu Asn Tyr Tyr Tyr Pro Pro Lys Met Leu  
35 40 45

Cys Leu  
50

&lt;210&gt; 1130

&lt;211&gt; 76

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1130

Phe Val Lys Gly Val Asn Cys Leu Ile Tyr Leu Thr Arg Phe Phe Lys  
 1 5 10 15

Gln Ile Leu Ile Gly His Ala Leu His Ala Arg Leu Trp Ala Trp Tyr  
 20 25 30

Leu Arg Val Leu Thr Gly Glu Ala Gly Ser Gly Asn Lys His Met Cys  
 35 40 45

Asn Cys Cys Val Asp Ser Leu Ile Gly Arg Lys Ser Ala Asn Lys Glu  
 50 55 60

Ala Asp Lys Leu Glu Asn Glu Arg Lys Val Met Cys  
 65 70 75

&lt;210&gt; 1131

&lt;211&gt; 121

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1131

Thr Pro Tyr Tyr Leu Arg Val Arg Arg Lys Asn Pro Val Thr Ser Thr  
 1 5 10 15

Tyr Ser Lys Met Ser Leu Gln Leu Tyr Gln Val Asp Ser Arg Thr Tyr  
 20 25 30

Leu Leu Asp Phe Arg Ser Ile Asp Asp Glu Ile Thr Glu Ala Lys Ser  
 35 40 45

Gly Thr Ala Thr Pro Gln Arg Ser Gly Ser Val Ser Asn Tyr Arg Ser  
 50 55 60

Cys Gln Arg Ser Asp Ser Asp Ala Glu Ala Gln Gly Lys Ser Ser Glu  
 65 70 75 80

Val Ser Leu Thr Ser Ser Val Thr Ser Leu Asp Ser Ser Pro Val Asp  
 85 90 95

Leu Thr Pro Arg Pro Gly Ser His Thr Ile Glu Phe Phe Glu Met Cys  
 100 105 110

Ala Asn Leu Ile Lys Ile Leu Ala Gln  
 115 120

<210> 1132

<211> 63

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (61)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (63)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1132

Lys Thr Arg Gly Lys Leu Asp Lys Glu Pro Arg Pro Thr Gly Val Cys  
1 5 10 15

Cys Leu Gln Glu Thr His Leu Thr Cys Gly Gly Ile His Arg Leu Lys  
20 25 30

Ile Lys Glu Trp Arg Lys Ile Phe Gln Ala Asn Gly Lys Gln Lys Lys  
35 40 45

Ala Gly Val Ala Leu Leu Leu Ser Asp Lys Thr Xaa Xaa Ala Xaa  
50 55 60

<210> 1133

<211> 46

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1133

Pro Ser Gln Val Ser Leu Asn His Pro Asp Asp Leu Pro Val Glu Arg  
1 5 10 15

Ser Tyr Pro Ser Gln Val Tyr Phe Leu Met Arg Thr Gly His Ser Trp  
20 25 30

Asp Asp Leu Pro Ala Glu Arg Ser Asp Ile Phe Trp Val Xaa  
35 40 45

<210> 1134

<211> 65

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1134

Asn Ser Ala Arg Glu Val Ile Tyr Met Ile His Ser Gln Glu Leu Leu  
1 5 10 15

Asp Arg Lys Xaa Gln Gly Pro Gln Pro Leu Cys Pro Leu Tyr Pro Gln  
20 25 30

Met Ala Leu Gly Ile Asn Ser Ser Gly Ile Ala Leu Lys Asn Ser Ala  
35 40 45

Ser Cys Phe Ala Glu Cys His Gly His Val Ile Leu Arg Ser His Asn  
50 55 60

Thr

65

<210> 1135

<211> 30

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1135

Ser Cys Val Arg Gly Asn Leu Glu Pro Tyr Ile Asn Thr Tyr Ile Ile  
1 5 10 15

Lys Gly Lys Ile Leu Lys Val Asn Gly Xaa Lys Ala Ser Ile  
20 25 30

<210> 1136  
<211> 51  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (16)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1136  
Pro Glu Ser Arg His Ile Leu Val Cys Thr Gln Leu Trp Ala Lys Xaa  
1 5 10 15  
Arg Trp Arg His Leu Ser Ser His Ala Glu Leu His Ser Arg Leu Arg  
20 25 30  
Thr Trp Val Gly Ser Ser Lys Val Ile Ala Lys Ala Pro Leu Ser Gly  
35 40 45  
Gly Tyr Thr  
50

<210> 1137  
<211> 48  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (25)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (26)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (42)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1137  
Ser Arg Leu Ser Phe Gln Asp Leu Ala Pro Ala Leu Gly Met Val Gly  
1 5 10 15

Gly Lys Ala Lys Asn Leu Gly Ser Xaa Xaa Pro Trp Ala Leu Lys Asn  
                   20                                  25                                  30

Val Val Leu Phe Lys Glu Gln Gly Ser Xaa Gln Gly Cys Phe Trp Gly  
                   35                                  40                                  45

<210> 1138

<211> 53

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (53)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1138

Lys Met Cys Leu Phe Gln Leu Ser Gln Xaa Gly Asn Val Thr Gly Ile  
       1                                  5                                  10                                  15

Arg Trp Val Lys Ala Arg Asp Ala Ala Arg His Ser Thr Val His Arg  
                   20                                  25                                  30

Thr Thr Pro Thr Thr Lys Asn Tyr Leu Ala Gln Asn Val Asn Asn Ala  
                   35                                  40                                  45

Glu Val Glu Lys Xaa  
                   50

<210> 1139

<211> 86

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (54)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1139

Ile Gly Phe Gly His Asp Thr Asp Phe Leu Glu Ala Arg Cys Cys Phe  
1 5 10 15

Xaa Ser Gly Met Gly Val His Asp Cys Pro Glu Gln Pro Arg Ser Gln  
20 25 30

Phe Phe Arg Arg Leu Ser Ala Ile Ser Ala Gln Ala Phe Thr Gly Gln  
35 40 45

Gly Gln Lys Gln Leu Xaa Gly Val Gly Gly Ala Ser Ser Thr Ala Ala  
50 55 60

Trp Pro Gln Glu Ile Gly Cys Ser Ser Ser Ser Ala Cys Gly Met Val  
65 70 75 80

Arg Asn Asn Leu Gly Gly  
85

&lt;210&gt; 1140

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1140

Ile Lys Lys Tyr Ile Phe His Phe Tyr Phe Ile Xaa Asn His Asn Tyr  
1 5 10 15

Leu Leu Arg Arg Cys Met His Leu Leu Asp Thr Val Gln Leu Leu Thr  
20 25 30

Trp Asn Glu Ile Gly His Cys Cys Pro His Phe Leu Leu His Val Gly  
35 40 45

Val His Ile Val Leu Asp Phe Leu Ser Asp Gly Leu Glu Asn Pro Val  
50 55 60

Ser Gln Lys Tyr Glu Ile Ile Arg Arg Ile Ile Val Gln Ser Tyr Val  
65 70 75 80

Glu Arg Met Asn Tyr Leu Thr Ser Ser Ser Arg Asp Val  
                     85                    90

<210> 1141

<211> 63

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (56)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1141

Lys Ile Ile Ile Phe Ser Val Val His Asn Asn Val Leu Asn Ile Leu  
     1                    5                    10                    15

Leu Ile Lys Gly Ala Met Ser Leu Cys Met Val Leu Asn Val Ser Cys  
                     20                    25                    30

Val Pro Phe Ala Gln Leu Arg Ile Leu Gln Leu Gly Phe Asn Glu Trp  
                     35                    40                    45

Gly His Gly Ile Ile Met Gly Xaa Cys Lys Lys Xaa Lys Arg Gly  
                     50                    55                    60

<210> 1142

<211> 57

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (49)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (56)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1142

Phe Cys Val Glu Leu Ile Ser Gln Cys Arg Gly Lys Asn Ser Leu Gly  
1 5 10 15

Ser Ser Leu Asp Ile Thr Val His Arg Ala Ser His Gln Asp Asp Pro  
20 25 30

Thr Phe Tyr Gly Gly Pro Gly Ile Gly Ser Pro Glu Pro Ile Thr Gln  
35 40 45

Xaa Pro Ser Asp Gly Trp Gly Xaa Trp  
50 55

&lt;210&gt; 1143

&lt;211&gt; 203

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (36)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (107)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (171)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (174)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (180)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

<221> SITE

<222> (184)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (190)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1143

Ala Leu Ala Leu Cys Gln Cys Gly Val Pro Ala Cys Ser His Val Pro  
1 5 10 15

Met Trp Ser Ala Arg Leu Leu Met Cys Pro Cys Gly Val Pro Ala Cys  
20 25 30

Ser His Met Xaa Met Arg Ser Ala Xaa Leu Leu Thr His Ala His Val  
35 40 45

Glu Cys Pro Pro Ala His Thr Cys Pro Cys Gly Val Pro Ala Cys Ser  
50 55 60

His Thr Cys Pro Cys Gly Val Pro Thr Cys Ser Cys Ala His Val Glu  
65 70 75 80

Cys Pro Pro Ala His Met Cys Arg Cys Gly Val Pro Pro Ala His Thr  
85 90 95

Arg Ala His Val Glu Cys Pro Pro Ala His Xaa Cys Arg Cys Gly Val  
100 105 110

Pro Ala Cys Ser His Val Pro Met Arg Ser Ala Arg Leu Leu Thr Arg  
115 120 125

Ala Asp Ala Glu Cys Pro Pro Ala His Thr Cys Pro Cys Gly Val Pro  
130 135 140

Ala Cys Ser His Val Pro Thr Arg Ser Ala Arg Leu Leu Thr Arg Ala  
145 150 155 160

Asp Ala Glu Cys Pro Pro Ala His Thr Cys Xaa Arg Gly Xaa Pro Ala  
165 170 175

Cys Ser His Xaa Pro Thr Arg Xaa Ala Arg Leu Leu Thr Xaa Ala His  
180 185 190

Val Glu Cys Arg Leu Leu Thr Leu Pro Met Trp  
195 200

<210> 1144  
<211> 62  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (40)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1144  
Lys Val Leu Leu Pro Tyr Leu Cys Ser Ser Phe Pro Met Ala Glu Phe  
1 5 10 15  
Cys Asn Tyr Ile Gln Asn Ile Val Tyr Ile Leu Phe Leu Lys Leu Tyr  
20 25 30  
Tyr Ile Gly Trp Ile Leu Leu Xaa Trp Gly Thr Gly Ala Tyr Ile Gln  
35 40 45  
Gly Ser Phe Leu Ser Thr Cys Leu Ser Thr Ile Cys Cys Val  
50 55 60

<210> 1145  
<211> 105  
<212> PRT  
<213> Homo sapiens

<400> 1145  
Asn Glu Ser Leu Thr Gln Phe His Ala Thr Phe Cys Leu Phe Ser Lys  
1 5 10 15  
Glu Arg Leu Leu Gly Leu Ser Val Thr Arg His Val Trp Ile Ala Ser  
20 25 30  
His Ile His Ile Met Pro Gly Ser Pro Gln Pro Thr His Val Leu Glu  
35 40 45  
Val Ala Thr Cys Gln Val Ser Val Phe Ser Leu Asn Ser Lys Trp Val  
50 55 60  
Asn His Met Asn Ser Thr Gly Pro Cys Glu Asn Gly Val Lys Ala Ser  
65 70 75 80  
Phe Val Pro Phe Ser Ile Ser Leu Thr His Met Cys Ser Leu Ser Thr  
85 90 95  
Ala Glu Asp Arg Phe Val Cys Ala Leu  
100 105

<210> 1146

<211> 243

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (240)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1146

Lys Glu Thr Leu Glu Thr Ile Ser Asn Glu Glu Gln Thr Pro Leu Leu  
1 5 10 15

Lys Lys Ile Asn Pro Thr Glu Ser Thr Ser Lys Ala Glu Glu Asn Glu  
20 25 30

Lys Val Asp Ser Lys Val Lys Ala Phe Lys Lys Pro Leu Ser Val Phe  
35 40 45

Lys Gly Pro Leu Leu His Ile Ser Pro Ala Glu Glu Leu Tyr Phe Gly  
50 55 60

Ser Thr Glu Ser Gly Glu Lys Lys Thr Leu Ile Val Leu Thr Asn Val  
65 70 75 80

Thr Lys Asn Ile Val Ala Phe Lys Val Arg Thr Thr Ala Pro Glu Lys  
85 90 95

Tyr Arg Val Lys Pro Ser Asn Ser Ser Cys Asp Pro Gly Ala Ser Val  
100 105 110

Asp Ile Val Val Ser Pro His Gly Gly Leu Thr Val Ser Ala Gln Asp  
115 120 125

Arg Phe Leu Ile Met Ala Ala Glu Met Glu Gln Ser Ser Gly Thr Gly  
130 135 140

Pro Ala Glu Leu Thr Gln Phe Trp Lys Glu Val Pro Arg Asn Lys Val  
145 150 155 160

Met Glu His Arg Leu Arg Cys His Thr Val Glu Ser Ser Lys Pro Asn  
165 170 175

Thr Leu Thr Leu Lys Asp Asn Ala Phe Asn Met Ser Asp Lys Thr Ser  
180 185 190

Glu Asp Ile Cys Leu Gln Leu Ser Arg Leu Leu Glu Ser Asn Arg Lys

195

200

205

Leu Glu Asp Gln Val Gln Arg Cys Ile Trp Phe Gln Gln Leu Leu Leu  
210 215 220

Ser Leu Thr Met Leu Leu Leu Ala Phe Val Thr Ser Phe Phe Tyr Xaa  
225 230 235 240

Leu Tyr Ser

&lt;210&gt; 1147

&lt;211&gt; 58

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1147

Ser Val Lys Met Met Tyr Cys Ile Leu Lys Tyr Ser Asn Cys Ala Phe  
1 5 10 15

Leu Tyr His Leu Gln Tyr Glu Lys Cys Gln Tyr Leu Val Pro Phe Ser  
20 25 30

Gly Thr Ile Arg Phe Leu Leu Thr Leu Phe Ser Pro Leu Thr His Val  
35 40 45

Ile Ser His Ser Asn Gln Glu Ser Arg Glu  
50 55

&lt;210&gt; 1148

&lt;211&gt; 73

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (1)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1148

Xaa Xaa Asn Gly Leu Gly Ser Val Lys Asp Gly Glu Pro His Phe Val  
1 5 10 15

Val Val His Cys Thr Gly Tyr Ile Lys Ala Trp Pro Gln Gln Val Phe  
                   20                                  25                                  30

Pro Ser Gln Met Met Thr Gln Pro Glu Val Phe Gln Glu Met Leu Ser  
                   35                                  40                                  45

Met Leu Gly Asp Gln Ser Asn Ser Tyr Asn Asn Glu Glu Phe Pro Asp  
                   50                                  55                                  60

Leu Thr Met Phe Pro Pro Phe Ser Glu  
       65                                  70

<210> 1149

<211> 79

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (50)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (58)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1149

Val Lys Trp Val Val Ser Phe Asn Ile Gln Asn Asn His Met Xaa Tyr  
       1                                  5                                  10                                  15

Xaa Leu Pro Leu Ser Phe Pro Phe Val Gln Met Arg Lys Val Arg Leu  
                   20                                  25                                  30

Thr Glu Val Asn Trp Pro Arg Val Pro Gln Leu Val Ser Ala Glu Val  
                   35                                  40                                  45

Gly Xaa His Asn Gln Ile Cys Ser Ala Xaa Asn Leu Cys Gln Ile Ser



50

55

60

Ser Lys Val Leu Gln Arg Ala Arg His Val Tyr Phe Ile Pro Ile  
65 70 75

&lt;210&gt; 1150

&lt;211&gt; 138

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1150

His Ser Glu Ile Gln Ser Val Cys Leu Thr Arg Leu Phe Asp Phe Lys  
1 5 10 15

Ile Phe Cys Arg Lys Cys Phe Glu Asn Phe Glu Tyr Leu Lys Met Ala  
20 25 30

Gly Val Val Leu His Phe Ala Ser Cys Ser Asp Thr Leu Phe Tyr Leu  
35 40 45

Tyr Arg Tyr Ser Glu Phe Leu Phe Phe Ser Thr Cys Cys Thr Leu Ser  
50 55 60

Lys Ala Lys Arg Lys Leu Ile Leu Gly Ser Arg Lys Ala Glu Ala Phe  
65 70 75 80

Gly Glu Met Glu Thr Arg Met Cys Lys Asn Glu Thr Thr Thr Ser Arg  
85 90 95

Ile Lys Lys Lys Lys Cys Gln Ser Ser Arg Val Leu Ser Asp Val Gln  
100 105 110

Glu Gly Gly Gly Ile Ile Phe Met Glu His Ile Leu Trp Asn Thr Ala  
115 120 125

Ile Arg Met Ser Glu Lys Leu Ile Cys Ser  
130 135

&lt;210&gt; 1151

&lt;211&gt; 489

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (18)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1151

Arg Pro Arg Thr Arg Ala Pro Arg Gly Ala Arg Ser Ala Cys Thr Arg  
 1 5 10 15

Gly Xaa Arg Arg Arg Pro Val Pro Ser Leu Lys Val Leu Ser Pro Phe  
 20 25 30

Ala Val Val Gln Met Arg Lys Lys Trp Lys Met Gly Gly Met Lys Tyr  
 35 40 45

Ile Phe Ser Leu Leu Phe Phe Leu Leu Leu Glu Gly Gly Lys Thr Glu  
 50 55 60

Gln Val Lys His Ser Glu Thr Tyr Cys Met Phe Gln Asp Lys Lys Tyr  
 65 70 75 80

Arg Val Gly Glu Arg Trp His Pro Tyr Leu Glu Pro Tyr Gly Leu Val  
 85 90 95

Tyr Cys Val Asn Cys Ile Cys Ser Glu Asn Gly Asn Val Leu Cys Ser  
 100 105 110

Arg Val Arg Cys Pro Asn Val His Cys Leu Ser Pro Val His Ile Pro  
 115 120 125

His Leu Cys Cys Pro Arg Cys Pro Glu Asp Ser Leu Pro Pro Val Asn  
 130 135 140

Asn Lys Val Thr Ser Lys Ser Cys Glu Tyr Asn Gly Thr Thr Tyr Gln  
 145 150 155 160

His Gly Glu Leu Phe Val Ala Glu Gly Leu Phe Gln Asn Arg Gln Pro  
 165 170 175

Asn Gln Cys Thr Gln Cys Ser Cys Ser Glu Gly Asn Val Tyr Cys Gly  
 180 185 190

Leu Lys Thr Cys Pro Lys Leu Thr Cys Ala Phe Pro Val Ser Val Pro  
 195 200 205

Asp Ser Cys Cys Arg Val Cys Arg Gly Asp Gly Glu Leu Ser Trp Glu  
 210 215 220

His Ser Asp Gly Asp Ile Phe Arg Gln Pro Ala Asn Arg Glu Ala Arg  
 225 230 235 240

His Ser Tyr His Arg Ser His Tyr Asp Pro Pro Pro Ser Arg Gln Ala  
 245 250 255

Gly Gly Leu Ser Arg Phe Pro Gly Ala Arg Ser His Arg Gly Ala Leu

260	265	270
Met Asp Ser Gln Gln Ala Ser Gly Thr Ile Val Gln Ile Val Ile Asn		
275	280	285
Asn Lys His Lys His Gly Gln Val Cys Val Ser Asn Gly Lys Thr Tyr		
290	295	300
Ser His Gly Glu Ser Trp His Pro Asn Leu Arg Ala Phe Gly Ile Val		
305	310	315
Glu Cys Val Leu Cys Thr Cys Asn Val Thr Lys Gln Glu Cys Lys Lys		
325	330	335
Ile His Cys Pro Asn Arg Tyr Pro Cys Lys Tyr Pro Gln Lys Ile Asp		
340	345	350
Gly Lys Cys Cys Lys Val Cys Pro Glu Glu Leu Pro Gly Gln Ser Phe		
355	360	365
Asp Asn Lys Gly Tyr Phe Cys Gly Glu Glu Thr Met Pro Val Tyr Glu		
370	375	380
Ser Val Phe Met Glu Asp Gly Glu Thr Thr Arg Lys Ile Ala Leu Glu		
385	390	395
Thr Glu Arg Pro Pro Gln Val Glu Val His Val Trp Thr Ile Arg Lys		
405	410	415
Gly Ile Leu Gln His Phe His Ile Glu Lys Ile Ser Lys Arg Met Phe		
420	425	430
Glu Glu Leu Pro His Phe Lys Leu Val Thr Arg Thr Thr Leu Ser Gln		
435	440	445
Trp Lys Ile Phe Thr Glu Gly Glu Ala Gln Ile Ser Gln Met Cys Ser		
450	455	460
Ser Arg Val Cys Arg Thr Glu Leu Glu Asp Leu Val Lys Val Leu Tyr		
465	470	475
Leu Glu Arg Ser Glu Lys Gly His Cys		
485		

&lt;210&gt; 1152

&lt;211&gt; 48

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1152

Ile Asn Phe Leu Thr Ile Gly Phe Tyr Gly Val Gly His Asn Phe Trp  
1 5 10 15

Leu Tyr Phe Lys Asn Phe Phe Leu Gly Gly Gly Val Leu Gly Ser Gly  
20 25 30

His Gln Gly Arg Gly Val Ala Trp Gly Xaa Asp Pro Gly Ala Ser Pro  
35 40 45

<210> 1153

<211> 48

<212> PRT

<213> Homo sapiens

<400> 1153

Thr Ile Val Arg Asp Gly Ser Asn Asp Val Ile Cys Glu Asn Ser His  
1 5 10 15

His Leu Pro Val Arg Gln Asn Leu Leu Lys Pro Pro Glu Ser Asn Leu  
20 25 30

Asp Tyr Ile Arg Pro Phe Phe Thr His Lys Lys Ile Leu Tyr Gly Ile  
35 40 45

<210> 1154

<211> 344

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (85)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (88)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (96)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (140)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (314)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1154

Ser Lys Lys Leu Thr Arg Pro Leu Val Met Lys Thr Gly Arg Pro Ala  
1 5 10 15

Gly Lys Gly Ser Ile Thr Ile Ser Ala Glu Glu Ile Lys Asp Asn Arg  
20 25 30

Val Val Leu Phe Glu Met Glu Ala Arg Lys Leu Asp Asn Lys Asp Leu  
35 40 45

Phe Gly Lys Ser Asp Pro Tyr Leu Glu Phe His Lys Gln Thr Ser Asp  
50 55 60

Gly Asn Trp Leu Met Val His Arg Thr Glu Val Val Lys Asn Asn Leu  
65 70 75 80

Asn Pro Val Trp Xaa Pro Phe Xaa Ile Ser Leu Asn Ser Leu Cys Xaa  
85 90 95

Gly Asp Met Asp Lys Thr Ile Lys Val Glu Cys Tyr Asp Tyr Asp Asn  
100 105 110

Asp Gly Ser His Asp Leu Ile Gly Thr Phe Gln Thr Thr Met Thr Lys  
115 120 125

Leu Lys Glu Ala Ser Arg Ser Ser Pro Val Glu Xaa Glu Cys Ile Asn  
130 135 140

Glu Lys Lys Arg Gln Lys Lys Lys Ser Tyr Lys Asn Ser Gly Val Ile  
145 150 155 160

Ser Val Lys Gln Cys Glu Ile Thr Val Glu Cys Thr Phe Leu Asp Tyr

165                      170                      175  
 Ile Met Gly Gly Cys Gln Leu Asn Phe Thr Val Gly Val Asp Phe Thr  
                     180                      185                      190  
 Gly Ser Asn Gly Asp Pro Arg Ser Pro Asp Ser Leu His Tyr Ile Ser  
                     195                      200                      205  
 Pro Asn Gly Val Asn Glu Tyr Leu Thr Ala Leu Trp Ser Val Gly Leu  
                     210                      215                      220  
 Val Ile Gln Asp Tyr Asp Ala Asp Lys Met Phe Pro Ala Phe Gly Phe  
                     225                      230                      235                      240  
 Gly Ala Gln Ile Pro Pro Gln Trp Gln Val Ser His Glu Phe Pro Met  
                     245                      250                      255  
 Asn Phe Asn Pro Ser Asn Pro Tyr Cys Asn Gly Ile Gln Gly Ile Val  
                     260                      265                      270  
 Glu Ala Tyr Arg Ser Cys Leu Pro Gln Ile Lys Leu Tyr Gly Pro Thr  
                     275                      280                      285  
 Asn Phe Ser Pro Ile Ile Asn His Val Ala Arg Phe Ala Ala Ala Ala  
                     290                      295                      300  
 Thr Gln Gln Gln Thr Ala Ser Gln Tyr Xaa Val Leu Leu Ile Ile Thr  
                     305                      310                      315                      320  
 Asp Gly Val Ile Thr Asp Leu Asp Glu Thr Arg Gln Ala Ile Val Asn  
                     325                      330                      335  
 Ala Ser Ser Cys Leu Cys Pro Ser  
                     340

&lt;210&gt; 1155

&lt;211&gt; 120

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1155

Tyr Phe Ile Glu Gly Leu Cys Ala Lys Asn Tyr Ala Tyr Leu Tyr Ile  
   1                    5                    10                    15

Gly Gln Leu Ser Leu Ile Ile Tyr Leu Leu Lys Leu His Val Tyr His  
                     20                    25                    30

Ile Ser Leu Ser Gly His Ile Gln Cys His Val Asp Val Pro Leu Ser  
                     35                    40                    45

Phe Ile Glu Lys Leu Pro His Ser Pro Cys Leu Leu Phe Ser Ala Met  
50 55 60

Pro Gln Gly Ser Glu Leu Ser Thr Thr Asp Ser Cys Gly Phe Ser Glu  
65 70 75 80

Ala Ala His Cys Gln Gly Gln Ala Glu Arg Gly Pro Ala Cys Cys Gly  
85 90 95

Gly Cys Leu Ala Gln Met Ser Ile Tyr Leu Pro Pro Ser His Leu Ala  
100 105 110

Ser Cys Pro Leu Asp Met Cys Cys  
115 120

<210> 1156

<211> 469

<212> PRT

<213> Homo sapiens

<400> 1156

Gly Gly Trp Arg Trp Lys Leu Arg Glu Ser Gly Ala Ile Ala Pro Arg  
1 5 10 15

Asp Ser Gln Ser Arg Pro Leu Gln Ser Leu Arg Gln Leu Ala Leu Arg  
20 25 30

Val Gly Val Ala Pro Ala Ala Ala Met Ser Gly Gly Val Tyr Gly Gly  
35 40 45

Asp Glu Val Gly Ala Leu Val Phe Asp Ile Gly Ser Tyr Thr Val Arg  
50 55 60

Ala Gly Tyr Ala Gly Glu Asp Cys Pro Lys Val Asp Phe Pro Thr Ala  
65 70 75 80

Ile Gly Met Val Val Glu Arg Asp Asp Gly Ser Thr Leu Met Glu Ile  
85 90 95

Asp Gly Asp Lys Gly Lys Gln Gly Gly Pro Thr Tyr Tyr Ile Asp Thr  
100 105 110

Asn Ala Leu Arg Val Pro Arg Glu Asn Met Glu Ala Ile Ser Pro Leu  
115 120 125

Lys Asn Gly Met Val Glu Asp Trp Asp Ser Phe Gln Ala Ile Leu Asp  
130 135 140

His Thr Tyr Lys Met His Val Lys Ser Glu Ala Ser Leu His Pro Val  
145 150 155 160

Leu Met Ser Glu Ala Pro Trp Asn Thr Arg Ala Lys Arg Glu Lys Leu  
165 170 175

Thr Glu Leu Met Phe Glu His Tyr Asn Ile Pro Ala Phe Phe Leu Cys  
180 185 190

Lys Thr Ala Val Leu Thr Ala Phe Ala Asn Gly Arg Ser Thr Gly Leu  
195 200 205

Ile Leu Asp Ser Gly Ala Thr His Thr Thr Ala Ile Pro Val His Asp  
210 215 220

Gly Tyr Val Leu Gln Gln Gly Ile Val Lys Ser Pro Leu Ala Gly Asp  
225 230 235 240

Phe Ile Thr Met Gln Cys Arg Glu Leu Phe Gln Glu Met Asn Ile Glu  
245 250 255

Leu Val Pro Pro Tyr Met Ile Ala Ser Lys Glu Ala Val Arg Glu Gly  
260 265 270

Ser Pro Ala Asn Trp Lys Arg Lys Glu Lys Leu Pro Gln Val Thr Arg  
275 280 285

Ser Trp His Asn Tyr Met Cys Asn Cys Val Ile Gln Asp Phe Gln Ala  
290 295 300

Ser Val Leu Gln Val Ser Asp Ser Thr Tyr Asp Glu Gln Val Ala Ala  
305 310 315 320

Gln Met Pro Thr Val His Tyr Glu Phe Pro Asn Gly Tyr Asn Cys Asp  
325 330 335

Phe Gly Ala Glu Arg Leu Lys Ile Pro Glu Gly Leu Phe Asp Pro Ser  
340 345 350

Asn Val Lys Gly Leu Ser Gly Asn Thr Met Leu Gly Val Ser His Val  
355 360 365

Val Thr Thr Ser Val Gly Met Cys Asp Ile Asp Ile Arg Pro Gly Leu  
370 375 380

Tyr Gly Ser Val Ile Val Ala Gly Gly Asn Thr Leu Ile Gln Ser Phe  
385 390 395 400

Thr Asp Arg Leu Asn Arg Glu Leu Ser Gln Lys Thr Pro Pro Ser Met  
405 410 415



Arg Leu Lys Leu Ile Ala Asn Asn Thr Thr Val Glu Arg Arg Phe Ser  
420 425 430

Ser Trp Ile Gly Gly Ser Ile Leu Ala Ser Leu Gly Thr Phe Gln Gln  
435 440 445

Met Trp Ile Ser Lys Gln Glu Tyr Glu Glu Gly Gly Lys Gln Cys Val  
450 455 460

Glu Arg Lys Cys Pro  
465

<210> 1157

<211> 94

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (19)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (49)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1157

Thr Ala Leu Cys Pro Arg Ile His Glu Val Pro Leu Leu Glu Pro Leu  
1 5 10 15

Val Cys Xaa Lys Ile Ala Gln Glu Arg Leu Thr Val Leu Leu Phe Leu  
20 25 30

Glu Asp Cys Ile Ile Thr Ala Cys Gln Glu Gly Leu Ile Cys Thr Trp  
35 40 45

Xaa Arg Pro Gly Lys Ala Phe Thr Asp Glu Glu Thr Glu Ala Gln Thr  
50 55 60

Gly Glu Gly Ser Trp Pro Arg Ser Pro Ser Lys Ser Val Val Glu Gly  
65 70 75 80

Ile Ser Ser Gln Pro Gly Asn Ser Pro Ser Gly Thr Val Val  
85 90

<210> 1158

<211> 114  
<212> PRT  
<213> Homo sapiens

<400> 1158  
Leu Ser Pro Gln Trp Thr His Leu Leu Val Lys Gly Ala Val Val Leu  
1 5 10 15  
Cys Gly Ser Gln Phe Thr Ser Phe Pro Lys Ile Gln Cys Asp His Pro  
20 25 30  
Val Asn Gly His Thr Ser Ser Glu Ile Asn Phe Gln Asn Leu Cys Ser  
35 40 45  
Ser Ser Tyr Pro Leu Arg Val Ile Met Ala Asn Lys Gln Lys Ala Leu  
50 55 60  
Val Gln Ala Pro Pro Asn Thr Leu Asn Leu Asn Leu Asn Met Leu Lys  
65 70 75 80  
Phe Glu Asn Lys Glu Thr Phe Phe Ile Ser Leu Ser Gly Leu Ser Leu  
85 90 95  
Val Leu Met Gly Leu Leu Met Ala Phe Gln Ser Val Ala Glu Ala Ile  
100 105 110  
Ile Phe

<210> 1159  
<211> 155  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (43)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (46)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1159  
Pro Trp Gly Ala Trp Arg Gln Gly Ala Arg Ala Ala Gln Ser Pro Phe  
1 5 10 15  
Ser Ile Pro Asn Ser Ser Ser Val Pro Tyr Gly Ser Gln Asp Ser Val

20 25 30

His Ser Ser Pro Glu Asp Gly Gly Gly Gly Xaa Asp Arg Xaa Gly Gly  
35 40 45

Thr Gly Gly Pro Arg Leu Val Ile Gly Ser Leu Pro Ala His Leu Ser  
50 55 60

Pro His Met Phe Gly Gly Phe Lys Cys Pro Val Cys Ser Lys Phe Val  
65 70 75 80

Ser Ser Asp Glu Met Asp Leu His Leu Val Met Cys Leu Thr Lys Pro  
85 90 95

Arg Ile Thr Tyr Asn Glu Asp Val Leu Ser Lys Asp Ala Gly Glu Cys  
100 105 110

Ala Ile Cys Leu Glu Glu Leu Gln Gln Gly Asp Thr Ile Ala Arg Leu  
115 120 125

Pro Cys Leu Cys Ile Tyr His Lys Gly Cys Ile Asp Glu Trp Phe Glu  
130 135 140

Val Asn Arg Ser Cys Pro Glu His Pro Ser Asp  
145 150 155

<210> 1160

<211> 337

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (155)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (169)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1160

Cys Leu Gly Cys Lys Pro Asp Gln Pro Leu Arg Ala Glu Gly Arg Leu  
1 5 10 15

Leu Ala Pro Ser Gly Asn Pro Ala Pro Ser Pro Gly Ser Glu Arg Leu  
20 25 30

Ala Gly Asp Asp Thr Xaa Ser Ala Pro Ala Ala Pro Ser Xaa Gly Cys  
35 40 45

Gly Lys Arg Arg Glu Ser Asp Ala Gly Ala Gly Gly Glu Arg Ala Ser  
50 55 60

Val Arg Thr Gly Ser Gly Arg Arg Gly Gly Ala Asn His Gly Arg Gly  
65 70 75 80

Gln Arg Ala Asp Pro Ala Glu Pro Pro Ala Ala Gln Arg Arg Arg Ala  
85 90 95

Leu Pro Tyr Arg Arg His Gly Gly Thr Ala Ser Gly Lys Ser Ser Val  
100 105 110

Cys Ala Lys Ile Val Gln Leu Leu Gly Gln Asn Glu Val Asp Tyr Arg  
115 120 125

Gln Lys Gln Val Val Ile Leu Ser Gln Asp Ser Phe Tyr Arg Val Leu  
130 135 140

Thr Ser Glu Gln Lys Ala Lys Ala Leu Lys Xaa Gln Phe Asn Phe Asp  
145 150 155 160

His Pro Asp Ala Phe Asp Asn Glu Xaa Ile Leu Lys Thr Leu Lys Glu  
165 170 175

Ile Thr Glu Gly Lys Thr Val Gln Ile Pro Val Tyr Asp Phe Val Ser  
180 185 190

His Ser Arg Lys Glu Glu Thr Val Thr Val Tyr Pro Ala Asp Val Val  
195 200 205

Leu Phe Glu Gly Ile Leu Ala Phe Tyr Ser Gln Glu Val Arg Asp Leu  
210 215 220

Phe Gln Met Lys Leu Phe Val Asp Thr Asp Ala Asp Thr Arg Leu Ser  
225 230 235 240

Arg Arg Val Leu Arg Asp Ile Ser Glu Arg Gly Arg Asp Leu Glu Gln  
245 250 255

Ile Leu Ser Gln Tyr Ile Thr Phe Val Lys Pro Ala Phe Glu Glu Phe  
260 265 270

Cys Leu Pro Thr Lys Lys Tyr Ala Asp Val Ile Ile Pro Arg Gly Ala  
275 280 285

Asp Asn Leu Val Ala Ile Asn Leu Ile Val Gln His Ile Gln Asp Ile  
290 295 300

Leu Asn Gly Gly Pro Ser Lys Arg Gln Thr Asn Gly Cys Leu Asn Gly  
305 310 315 320

Tyr Thr Pro Ser Arg Lys Arg Gln Ala Ser Glu Ser Ser Ser Arg Pro  
325 330 335

His

<210> 1161

<211> 330

<212> PRT

<213> Homo sapiens

<400> 1161

Ala Arg Gly Met Phe Gly Leu Gly Asn Glu Phe Lys Pro Leu Asn Val  
1 5 10 15

Gln Glu Arg Glu Ala Gln Phe Gly Thr Thr Ala Glu Ile Tyr Ala Tyr  
20 25 30

Arg Glu Glu Gln Asp Phe Gly Ile Glu Ile Val Lys Val Lys Ala Ile  
35 40 45

Gly Arg Gln Arg Phe Lys Val Leu Glu Leu Arg Thr Gln Ser Asp Gly  
50 55 60

Ile Gln Gln Ala Lys Val Gln Ile Leu Pro Glu Cys Val Leu Pro Ser  
65 70 75 80

Thr Met Ser Ala Val Gln Leu Glu Ser Leu Asn Lys Cys Gln Ile Phe  
85 90 95

Pro Ser Lys Pro Val Ser Arg Glu Asp Gln Cys Ser Tyr Lys Trp Trp  
100 105 110

Gln Lys Tyr Gln Lys Arg Lys Phe His Cys Ala Asn Leu Thr Ser Trp  
115 120 125

Pro Arg Trp Leu Tyr Ser Leu Tyr Asp Ala Glu Thr Leu Met Asp Arg

130

135

140

Ile Lys Lys Gln Leu Arg Glu Trp Asp Glu Asn Leu Lys Asp Asp Ser  
 145 150 155 160

Leu Pro Ser Asn Pro Ile Asp Phe Ser Tyr Arg Val Ala Ala Cys Leu  
 165 170 175

Pro Ile Asp Asp Val Leu Arg Ile Gln Leu Leu Lys Ile Gly Ser Ala  
 180 185 190

Ile Gln Arg Leu Arg Cys Glu Leu Asp Ile Met Asn Lys Cys Thr Ser  
 195 200 205

Leu Cys Cys Lys Gln Cys Gln Glu Thr Glu Ile Thr Thr Lys Asn Glu  
 210 215 220

Ile Phe Ser Leu Ser Leu Cys Gly Pro Met Ala Ala Tyr Val Asn Pro  
 225 230 235 240

His Gly Tyr Val His Glu Thr Leu Thr Val Tyr Lys Ala Cys Asn Leu  
 245 250 255

Asn Leu Ile Gly Arg Pro Ser Thr Glu His Ser Trp Phe Pro Gly Tyr  
 260 265 270

Ala Trp Thr Val Ala Gln Cys Lys Ile Cys Ala Ser His Ile Gly Trp  
 275 280 285

Lys Phe Thr Ala Thr Lys Lys Asp Met Ser Pro Gln Lys Phe Trp Gly  
 290 295 300

Leu Thr Arg Ser Ala Leu Leu Pro Thr Ile Pro Asp Thr Glu Asp Glu  
 305 310 315 320

Ile Ser Pro Asp Lys Val Ile Leu Cys Leu  
 325 330

&lt;210&gt; 1162

&lt;211&gt; 165

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (144)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

<221> SITE

<222> (148)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (153)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (165)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1162

Cys Arg Lys Thr Ala Gln Pro Thr Ala Ala Glu Met Lys Tyr Lys Asn  
1 5 10 15

Leu Met Ala Arg Ala Leu Tyr Asp Asn Val Pro Glu Cys Ala Glu Glu  
20 25 30

Leu Ala Phe Arg Lys Gly Asp Ile Leu Thr Val Ile Glu Gln Asn Thr  
35 40 45

Gly Gly Leu Glu Gly Trp Trp Leu Cys Ser Leu His Gly Arg Gln Gly  
50 55 60

Ile Val Pro Gly Asn Arg Val Lys Leu Leu Ile Gly Pro Met Gln Glu  
65 70 75 80

Thr Ala Ser Ser His Glu Gln Pro Ala Ser Gly Leu Met Gln Gln Thr  
85 90 95

Phe Gly Gln Gln Lys Leu Tyr Gln Val Pro Asn Pro Thr Gly Leu Leu  
100 105 110

Pro Pro Arg His Pro Phe Leu Pro Lys Val Pro Thr Leu Ser Leu Thr  
115 120 125

Gln Lys Ile Lys Gly Glu Ile Phe Thr Gln Arg Phe Pro Gln Leu Xaa  
130 135 140

Ala Gln Arg Xaa Thr Pro Lys Gly Xaa Lys Gly Gly Val Leu Phe Arg  
145 150 155 160

Val Ala Pro Pro Xaa  
165

<210> 1163

&lt;211&gt; 195

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (186)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1163

Phe Leu Asn Arg Glu Leu Ile Val Lys Ser Ser Met Ala Thr Gly Gly  
 1 5 10 15

Gly Pro Phe Glu Asp Gly Met Asn Asp Gln Asp Leu Pro Asn Trp Ser  
 20 25 30

Asn Glu Asn Val Asp Asp Arg Leu Asn Asn Met Asp Trp Gly Ala Gln  
 35 40 45

Gln Lys Lys Ala Asn Arg Ser Ser Glu Lys Asn Lys Lys Lys Phe Gly  
 50 55 60

Val Glu Ser Asp Lys Arg Val Thr Asn Asp Ile Ser Pro Glu Ser Ser  
 65 70 75 80

Pro Gly Val Gly Arg Arg Arg Thr Lys Thr Pro His Thr Phe Pro His  
 85 90 95

Ser Arg Tyr Met Ser Gln Met Ser Val Pro Glu Gln Ala Glu Leu Glu  
 100 105 110

Lys Leu Lys Gln Arg Ile Asn Phe Ser Asp Leu Asp Gln Arg Ser Ile  
 115 120 125

Gly Ser Asp Ser Gln Gly Arg Ala Thr Ala Ala Asn Asn Lys Arg Gln  
 130 135 140

Leu Ser Glu Asn Arg Lys Pro Phe Asn Phe Leu Pro Met Gln Ile Asn  
 145 150 155 160

Thr Asn Lys Glu Gln Arg Cys Ile Leu Gln Val Pro Gln Thr Glu Glu  
 165 170 175

Thr Val Gly Phe Ser Thr Val Leu Lys Xaa Cys Phe Ala Phe Trp Phe  
 180 185 190

Leu Ser Asn  
 195



&lt;210&gt; 1164

&lt;211&gt; 300

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1164

Arg Arg Pro Ser Ala Arg Arg Glu Leu Gly Lys Gly Arg Gln Arg Arg  
1 5 10 15

Arg Arg Gln Arg Gln Arg Gln Ser Pro Val Pro Arg Pro Ser Asp Arg  
20 25 30

Pro Ala Gly Leu Gly Leu Ala Lys Pro Ala Arg Arg Ala Leu Pro Thr  
35 40 45

Pro Glu Pro Gly Arg Lys Ser Ser Asp Ser Ser Leu Ala Ser Pro Gly  
50 55 60

Ala Ala Leu Gln Thr Gly Pro Val Val Arg Gly Ser Gly Ala Asp Pro  
65 70 75 80

Glu Ala Gly Phe Ala Gln Pro Pro Thr Arg Ala Gly Pro Leu Glu Gly  
85 90 95

Ala Phe Asn Ser Arg Thr Arg Gln Ala Thr Met Thr Glu Asn Ser Thr  
100 105 110

Ser Ala Pro Ala Ala Lys Pro Lys Arg Ala Lys Ala Ser Lys Lys Ser  
115 120 125

Thr Asp His Pro Lys Tyr Ser Asp Met Ile Val Ala Ala Ile Gln Ala  
130 135 140

Glu Lys Asn Arg Ala Gly Ser Ser Arg Gln Ser Ile Gln Lys Tyr Ile  
145 150 155 160

Lys Ser His Tyr Lys Val Gly Glu Asn Ala Asp Ser Gln Ile Lys Leu  
165 170 175

Ser Ile Lys Arg Leu Val Thr Thr Gly Val Leu Lys Gln Thr Lys Gly  
180 185 190

Val Gly Ala Ser Gly Ser Phe Arg Leu Ala Lys Ser Asp Glu Pro Lys  
195 200 205

Lys Ser Val Ala Phe Lys Lys Thr Lys Lys Glu Ile Lys Lys Val Ala  
210 215 220

Thr Pro Lys Lys Ala Ser Lys Pro Lys Lys Ala Ala Ser Lys Ala Pro  
225 230 235 240

Thr Lys Lys Pro Lys Ala Thr Pro Val Lys Lys Ala Lys Lys Lys Leu  
                   245                  250                  255

Ala Ala Thr Pro Lys Lys Ala Lys Lys Pro Lys Thr Val Lys Ala Lys  
                   260                  265                  270

Pro Val Lys Ala Ser Lys Pro Lys Lys Ala Lys Pro Val Lys Pro Lys  
                   275                  280                  285

Ala Lys Ser Ser Ala Lys Arg Ala Gly Lys Lys Lys  
                   290                  295                  300

<210> 1165

<211> 150

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (115)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1165

Ser Thr His Ala Ser Ala His Ala Ser Gly Lys Gln Glu Ile Val Asp  
   1                  5                  10                  15

Pro Pro Ser Lys Met Glu Asp Gly Lys Pro Val Trp Ala Pro His Pro  
                   20                  25                  30

Thr Asp Gly Phe Gln Met Gly Asn Ile Val Asp Ile Gly Pro Asp Ser  
                   35                  40                  45

Leu Thr Ile Glu Pro Leu Asn Gln Lys Gly Lys Thr Phe Leu Ala Leu  
                   50                  55                  60

Ile Asn Gln Val Phe Pro Ala Glu Glu Asp Ser Lys Lys Asp Val Glu  
                   65                  70                  75                  80

Asp Asn Cys Ser Leu Met Tyr Leu Asn Glu Ala Thr Leu Leu His Asn  
                   85                  90                  95

Ile Lys Val Arg Tyr Ser Lys Asp Arg Ile Tyr Thr Tyr Val Ala Asn  
                   100                  105                  110

Ile Leu Xaa Ala Val Asn Pro Tyr Phe Asp Ile Pro Lys Ile Tyr Leu  
                   115                  120                  125

Gln Ser Ile Lys Ser Tyr Gln Gly Lys Ser Leu Gly Thr Arg Pro Pro  
                   130                  135                  140

Pro Gly Leu Cys Asn Cys  
145 150

<210> 1166

<211> 84

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1166

Ala Ile Trp Pro Leu Arg Gly Leu Leu Arg Tyr Arg Gln Phe Cys Gly  
1 5 10 15

Ala Ala Ser Ala Ala Pro Arg Arg Ser Asn Met Leu Arg Ile Pro Leu  
20 25 30

Arg Arg Ala Leu Val Xaa Leu Ser Asn Lys Ser Ser Lys Gly Cys Val  
35 40 45

Arg Thr Thr Ala Thr Ala Ala Ser Asn Leu Ile Glu Val Phe Val Asp  
50 55 60

Gly Gln Ser Val Met Val Glu Pro Gly Thr Thr Val Leu Gln Ala Cys  
65 70 75 80

Glu Lys Val Gly

<210> 1167

<211> 348

<212> PRT

<213> Homo sapiens

<400> 1167

Leu Ile Phe Cys Gly Cys Trp Leu Phe Ala Ser Leu Thr Val Met Glu  
1 5 10 15

Ala Ala His Phe Phe Glu Gly Thr Glu Lys Leu Leu Glu Val Trp Phe  
20 25 30

Ser Arg Gln Gln Pro Asp Ala Asn Gln Gly Ser Gly Asp Leu Arg Thr  
35 40 45

Ile Pro Arg Ser Glu Trp Asp Ile Leu Leu Lys Asp Val Gln Cys Ser  
 50 55 60

Ile Ile Ser Val Thr Lys Thr Asp Lys Gln Glu Ala Tyr Val Leu Ser  
 65 70 75 80

Glu Ser Ser Met Phe Val Ser Lys Arg Arg Phe Ile Leu Lys Thr Cys  
 85 90 95

Gly Thr Thr Leu Leu Leu Lys Ala Leu Val Pro Leu Leu Lys Leu Ala  
 100 105 110

Arg Asp Tyr Ser Gly Phe Asp Ser Ile Gln Ser Phe Phe Tyr Ser Arg  
 115 120 125

Lys Asn Phe Met Lys Pro Ser His Gln Gly Tyr Pro His Arg Asn Phe  
 130 135 140

Gln Glu Glu Ile Glu Phe Leu Asn Ala Ile Phe Pro Asn Gly Ala Ala  
 145 150 155 160

Tyr Cys Met Gly Arg Met Asn Ser Asp Cys Trp Tyr Leu Tyr Thr Leu  
 165 170 175

Asp Phe Pro Glu Ser Arg Val Ile Ser Gln Pro Asp Gln Thr Leu Glu  
 180 185 190

Ile Leu Met Ser Glu Leu Asp Pro Ala Val Met Asp Gln Phe Tyr Met  
 195 200 205

Lys Asp Gly Val Thr Ala Lys Asp Val Thr Arg Glu Ser Gly Ile Arg  
 210 215 220

Asp Leu Ile Pro Gly Ser Val Ile Asp Ala Thr Met Phe Asn Pro Cys  
 225 230 235 240

Gly Tyr Ser Met Asn Gly Met Lys Ser Asp Gly Thr Tyr Trp Thr Ile  
 245 250 255

His Ile Thr Pro Glu Pro Glu Phe Ser Tyr Val Ser Phe Glu Thr Asn  
 260 265 270

Leu Ser Gln Thr Ser Tyr Asp Asp Leu Ile Arg Lys Val Val Glu Val  
 275 280 285

Phe Lys Pro Gly Lys Phe Val Thr Thr Leu Phe Val Asn Gln Ser Ser  
 290 295 300

Lys Cys Arg Thr Val Leu Ala Ser Pro Gln Lys Ile Glu Gly Phe Lys  
 305 310 315 320

Arg Leu Asp Cys Gln Ser Ala Met Phe Asn Asp Tyr Asn Phe Val Phe  
325 330 335

Thr Ser Phe Ala Lys Lys Gln Gln Gln Gln Ser  
340 345

<210> 1168

<211> 90

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (19)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1168

Ser Ser Gln Arg Leu Gln Gly Arg Ala Arg Ala Val Leu Ser Pro Pro  
1 5 10 15

Ala Pro Xaa Ser Asn Val Gly Thr Gly Glu Lys Lys Val Thr Glu Ala  
20 25 30

Trp Ile Ser Glu Asp Glu Asn Ser His Arg Thr Thr Ser Asp Arg Leu  
35 40 45

Thr Val Met Glu Leu Pro Ser Pro Glu Ser Glu Glu Val His Glu Pro  
50 55 60

Arg Leu Gly Glu Leu Leu Gly Asn Pro Glu Gly Gln Ser Leu Gly Ser  
65 70 75 80

Ser Pro Ser Gln Asp Arg Gly Cys Asn Arg  
85 90

<210> 1169

<211> 277

<212> PRT

<213> Homo sapiens

<400> 1169

Arg Ser Thr Arg Trp Arg Pro Lys Val Met Trp His Leu Leu Arg Arg  
1 5 10 15

Tyr Met Ala Ser Arg Leu His Ser Leu Arg Met Gly Gly Tyr Leu Phe  
20 25 30

Ser Gly Ser Gln Ala Pro Gln Leu Ser Pro Ala Leu Leu Arg Ala Leu  
35 40 45

Gly Gln Lys Cys Pro Asn Leu Lys Arg Leu Cys Leu His Val Ala Asp  
50 55 60

Leu Ser Met Val Pro Ile Thr Ser Leu Pro Ser Thr Leu Arg Thr Leu  
65 70 75 80

Glu Leu His Ser Cys Glu Ile Ser Met Ala Trp Leu His Lys Gln Gln  
85 90 95

Asp Pro Thr Val Leu Pro Leu Leu Glu Cys Ile Val Leu Asp Arg Val  
100 105 110

Pro Ala Phe Arg Asp Glu His Leu Gln Gly Leu Thr Arg Phe Arg Ala  
115 120 125

Leu Arg Ser Leu Val Leu Gly Gly Thr Tyr Arg Val Thr Glu Thr Gly  
130 135 140

Leu Asp Ala Gly Leu Gln Glu Leu Ser Tyr Leu Gln Arg Leu Glu Val  
145 150 155 160

Leu Gly Cys Thr Leu Ser Ala Asp Ser Thr Leu Leu Ala Ile Ser Arg  
165 170 175

His Leu Pro Arg Cys Ala Gln Asp Pro Ala Asp Arg Glu Gly Leu Ser  
180 185 190

Ala Pro Gly Leu Ala Val Leu Glu Gly Met Pro Ala Leu Glu Ser Leu  
195 200 205

Cys Leu Gln Gly Pro Leu Val Thr Pro Glu Met Pro Ser Pro Thr Glu  
210 215 220

Ile Leu Ser Ser Cys Leu Thr Met Pro Lys Leu Arg Val Leu Glu Leu  
225 230 235 240

Gln Gly Leu Gly Trp Glu Gly Gln Glu Ala Glu Lys Ile Leu Cys Lys  
245 250 255

Gly Leu Pro His Cys Met Val Ile Val Arg Ala Cys Pro Lys Glu Ser  
260 265 270

Met Asp Trp Trp Met  
275

<210> 1170  
 <211> 489  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (349)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (351)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (356)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (362)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1170  
 Thr Arg Val Phe Lys Glu Leu Glu Asn Thr Gly Lys Leu Ile Cys Ser  
 1 5 10 15

Pro Thr His Ile Asp Arg Val Arg Leu Phe Leu Met Gln Leu Arg Lys  
 20 25 30

Met Gln Thr Val Lys Lys Glu Gln Ala Ser Leu Asp Ala Ser Ser Asn  
 35 40 45

Val Asp Lys Met Met Val Leu Asn Ser Ala Leu Thr Glu Val Ser Glu  
 50 55 60

Asp Ser Thr Thr Gly Glu Glu Leu Leu Leu Ser Glu Gly Ser Val Gly  
 65 70 75 80

Lys Asn Lys Ser Ser Ala Cys Arg Arg Lys Arg Glu Phe Ile Pro Asp  
 85 90 95

Glu Lys Lys Asp Ala Met Tyr Trp Glu Lys Arg Arg Lys Asn Asn Glu  
 100 105 110

Ala Ala Lys Arg Ser Arg Glu Lys Arg Arg Leu Asn Asp Leu Val Leu  
 115 120 125

Glu Asn Lys Leu Ile Ala Leu Gly Glu Glu Asn Ala Thr Leu Lys Ala

130	135	140
Glu Leu Leu Ser Leu Lys Leu Lys Phe Gly Leu Ile Ser Ser Thr Ala		
145	150	155 160
Tyr Ala Gln Glu Ile Gln Lys Leu Ser Asn Ser Thr Ala Val Tyr Phe		
	165	170 175
Gln Asp Tyr Gln Thr Ser Lys Ser Asn Val Ser Ser Phe Val Asp Glu		
	180	185 190
His Glu Pro Ser Met Val Ser Ser Ser Cys Ile Ser Val Ile Lys His		
	195	200 205
Ser Pro Gln Ser Ser Leu Ser Asp Val Ser Glu Val Ser Ser Val Glu		
	210	215 220
His Thr Gln Glu Ser Ser Val Gln Gly Ser Cys Arg Ser Pro Glu Asn		
	225	230 235 240
Lys Phe Gln Ile Ile Lys Gln Glu Pro Met Glu Leu Glu Ser Tyr Thr		
	245	250 255
Arg Glu Pro Arg Asp Asp Arg Gly Ser Tyr Thr Ala Ser Ile Tyr Gln		
	260	265 270
Asn Tyr Met Gly Asn Ser Phe Ser Gly Tyr Ser His Ser Pro Pro Leu		
	275	280 285
Leu Gln Val Asn Arg Ser Ser Ser Asn Ser Pro Arg Thr Ser Glu Thr		
	290	295 300
Asp Asp Gly Val Val Gly Lys Ser Ser Asp Gly Glu Asp Glu Gln Gln		
	305	310 315 320
Val Pro Lys Gly Pro Ile His Ser Pro Val Glu Leu Lys His Val His		
	325	330 335
Ala Thr Val Val Lys Val Pro Glu Val Asn Ser Ser Xaa Leu Xaa His		
	340	345 350
Lys Leu Arg Xaa Lys Ala Lys Ala Met Xaa Ile Lys Val Glu Ala Phe		
	355	360 365
Asp Asn Glu Phe Glu Ala Thr Gln Lys Leu Ser Ser Pro Ile Asp Met		
	370	375 380
Thr Ser Lys Arg His Phe Glu Leu Glu Lys His Ser Ala Pro Ser Met		
	385	390 395 400
Val His Ser Ser Leu Thr Pro Phe Ser Val Gln Val Thr Asn Ile Gln		



405 410 415  
Asp Trp Ser Leu Lys Ser Glu His Trp His Gln Lys Glu Leu Ser Gly  
420 425 430  
Lys Thr Gln Asn Ser Phe Lys Thr Gly Val Val Glu Met Lys Asp Ser  
435 440 445  
Gly Tyr Lys Val Ser Asp Pro Glu Asn Leu Tyr Leu Lys Gln Gly Ile  
450 455 460  
Ala Asn Leu Ser Ala Glu Val Val Ser Leu Lys Arg Leu Ile Ala Thr  
465 470 475 480  
Gln Pro Ile Ser Ala Ser Asp Ser Gly  
485

<210> 1171  
<211> 49  
<212> PRT  
<213> Homo sapiens

<400> 1171  
Gly Gly Val Thr Lys Arg Gln Ile Leu His Met Ile Pro Leu Val Ile  
1 5 10 15  
Pro Arg Val Lys Phe Met Glu Thr Glu Ser Arg Lys Val Val Thr Ser  
20 25 30  
Gly Trp Glu Gly Glu Asn Val Glu Phe Asn Gly Tyr Arg Ile Leu Val  
35 40 45

Leu

<210> 1172  
<211> 442  
<212> PRT  
<213> Homo sapiens

<400> 1172  
Ala Glu Ala Arg Ala Lys Ala Glu Ala Ala Gly Leu Arg Glu Ala Ala  
1 5 10 15  
Ala Arg Arg Arg Ser Leu Ser Pro Ala Thr Met Ser Thr Lys Gln Ile  
20 25 30

Thr Cys Arg Tyr Phe Met His Gly Val Cys Arg Glu Gly Ser Gln Cys  
 35 40 45  
 Leu Phe Ser His Asp Leu Ala Asn Ser Lys Pro Ser Thr Ile Cys Lys  
 50 55 60  
 Tyr Tyr Gln Lys Gly Tyr Cys Ala Tyr Gly Thr Arg Cys Arg Tyr Asp  
 65 70 75 80  
 His Thr Arg Pro Ser Ala Ala Ala Gly Gly Ala Val Gly Thr Met Ala  
 85 90 95  
 His Ser Val Pro Ser Pro Ala Phe His Ser Pro His Pro Pro Ser Glu  
 100 105 110  
 Val Thr Ala Ser Ile Val Lys Thr Asn Ser His Glu Pro Gly Lys Arg  
 115 120 125  
 Glu Lys Arg Thr Leu Val Leu Arg Asp Arg Asn Leu Ser Gly Met Ala  
 130 135 140  
 Glu Arg Lys Thr Gln Pro Ser Met Val Ser Asn Pro Gly Ser Cys Ser  
 145 150 155 160  
 Asp Pro Gln Pro Ser Pro Glu Met Lys Pro His Ser Tyr Leu Asp Ala  
 165 170 175  
 Ile Arg Ser Gly Leu Asp Asp Val Glu Ala Ser Ser Ser Tyr Ser Asn  
 180 185 190  
 Glu Gln Gln Leu Cys Pro Tyr Ala Ala Ala Gly Glu Cys Arg Phe Gly  
 195 200 205  
 Asp Ala Cys Phe Tyr Leu His Gly Glu Val Cys Glu Ile Cys Arg Leu  
 210 215 220  
 Gln Val Leu His Pro Phe Asp Pro Glu Gln Arg Lys Ala His Glu Lys  
 225 230 235 240  
 Ile Cys Met Leu Thr Phe Glu His Glu Met Glu Lys Ala Phe Ala Phe  
 245 250 255  
 Gln Ala Ser Gln Asp Lys Val Cys Ser Ile Cys Met Glu Val Ile Leu  
 260 265 270  
 Glu Lys Ala Ser Ala Ser Glu Arg Arg Phe Gly Ile Leu Ser Asn Cys  
 275 280 285  
 Asn His Thr Tyr Cys Leu Ser Cys Ile Arg Gln Trp Arg Cys Ala Lys  
 290 295 300

Gln Phe Glu Asn Pro Ile Ile Lys Ser Cys Pro Glu Cys Arg Val Ile  
305 310 315 320

Ser Glu Phe Val Ile Pro Ser Val Tyr Trp Val Glu Asp Gln Asn Lys  
325 330 335

Lys Asn Glu Leu Ile Glu Ala Phe Lys Gln Gly Met Gly Lys Lys Ala  
340 345 350

Cys Lys Tyr Phe Glu Gln Gly Lys Gly Thr Cys Pro Phe Gly Ser Lys  
355 360 365

Cys Leu Tyr Arg His Ala Tyr Pro Asp Gly Arg Leu Ala Glu Pro Glu  
370 375 380

Lys Pro Arg Lys Gln Leu Ser Ser Gln Gly Thr Val Arg Phe Phe Asn  
385 390 395 400

Ser Val Arg Leu Trp Asp Phe Ile Glu Asn Arg Glu Ser Arg His Val  
405 410 415

Pro Asn Asn Glu Asp Val Asp Met Thr Glu Leu Gly Asp Leu Phe Met  
420 425 430

His Leu Ser Gly Val Glu Ser Ser Glu Pro  
435 440

<210> 1173

<211> 142

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (63)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (86)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1173

Leu Glu Phe Trp Leu Leu Cys Leu Xaa Ser Arg His Leu Leu Tyr Gln

1                      5                      10                      15  
 Leu Leu Trp Asn Met Phe Ser Lys Glu Val Glu Leu Ala Asp Ser Met  
                     20                      25                      30  
 Gln Thr Leu Phe Arg Gly Asn Ser Leu Ala Ser Lys Ile Met Thr Phe  
                     35                      40                      45  
 Cys Phe Lys Val Tyr Gly Ala Thr Tyr Leu Gln Lys Leu Leu Xaa Pro  
                     50                      55                      60  
 Leu Leu Arg Ile Val Ile Thr Ser Ser Asp Trp Gln His Val Ser Phe  
                     65                      70                      75                      80  
 Glu Val Asp Pro Thr Xaa Leu Glu Pro Ser Glu Ser Leu Glu Glu Asn  
                     85                      90                      95  
 Gln Arg Asn Leu Leu Gln Met Thr Glu Lys Phe Phe His Ala Ile Ile  
                     100                      105                      110  
 Ser Ser Ser Ser Glu Phe Pro Pro Gln Leu Arg Ser Val Cys His Cys  
                     115                      120                      125  
 Leu Tyr Gln Ala Thr Tyr His Ser Leu Leu Asn Lys Ala Thr  
                     130                      135                      140

<210> 1174

<211> 385

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (189)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (313)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1174

Pro Met Arg Arg Pro Arg Gly Glu Pro Gly Pro Arg Ala Pro Arg Pro  
 1                      5                      10                      15

Thr Glu Gly Ala Thr Cys Ala Gly Pro Gly Glu Ser Trp Ser Pro Ser  
                     20                      25                      30

Pro Asn Ser Met Leu Arg Val Leu Leu Ser Ala Gln Thr Ser Pro Ala

35	40	45
Arg Leu Ser Gly Leu Leu Leu Ile Pro Pro Val Gln Pro Cys Cys Leu		
50	55	60
Gly Pro Ser Lys Trp Gly Asp Arg Pro Val Gly Gly Gly Pro Ser Ala		
65	70	75
Gly Pro Val Gln Gly Leu Gln Arg Leu Leu Glu Gln Ala Lys Ser Pro		
85	90	95
Gly Glu Leu Leu Arg Trp Leu Gly Gln Asn Pro Ser Lys Val Arg Ala		
100	105	110
His His Tyr Ser Val Ala Leu Arg Arg Leu Gly Gln Leu Leu Gly Ser		
115	120	125
Arg Pro Arg Pro Pro Pro Val Glu Gln Val Thr Leu Gln Asp Leu Ser		
130	135	140
Gln Leu Ile Ile Arg Asn Cys Pro Ser Phe Asp Ile His Thr Ile His		
145	150	155
Val Cys Leu His Leu Ala Val Leu Leu Gly Phe Pro Ser Asp Gly Pro		
165	170	175
Leu Val Cys Ala Leu Glu Gln Glu Arg Arg Leu Ala Xaa Pro Pro Lys		
180	185	190
Pro Pro Pro Pro Leu Gln Pro Leu Leu Arg Gly Gly Gln Gly Leu Glu		
195	200	205
Ala Ala Leu Ser Cys Pro Arg Phe Leu Arg Tyr Pro Arg Gln His Leu		
210	215	220
Ile Ser Ser Leu Ala Glu Ala Arg Pro Glu Glu Leu Thr Pro His Val		
225	230	235
Met Val Leu Leu Ala Gln His Leu Ala Arg His Arg Leu Arg Glu Pro		
245	250	255
Gln Leu Leu Glu Ala Ile Ala His Phe Leu Val Val Gln Glu Thr Gln		
260	265	270
Leu Ser Ser Lys Val Val Gln Lys Leu Val Leu Pro Phe Gly Arg Leu		
275	280	285
Asn Tyr Leu Pro Leu Glu Gln Gln Phe Met Pro Cys Leu Glu Arg Ile		
290	295	300
Leu Ala Arg Glu Ala Gly Val Ala Xaa Leu Ala Thr Val Asn Ile Leu		

305                      310                      315                      320  
 Met Ser Leu Cys Gln Leu Arg Cys Leu Pro Phe Arg Ala Leu His Phe  
                          325                      330                      335  
 Val Phe Ser Pro Gly Phe Ile Asn Tyr Ile Ser Gly Thr Gln Pro Gly  
                          340                      345                      350  
 Trp Leu Ala Gly Pro Leu Arg Ala Gly Glu Ala Gly Glu Gln Gly Gly  
                          355                      360                      365  
 Leu Gln Pro Arg Ala Pro Val Pro Ala Ser Pro Gln Ala Pro Leu Met  
                          370                      375                      380  
 Leu  
 385

&lt;210&gt; 1175

&lt;211&gt; 114

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (50)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1175

His Glu Gln Asp Pro Lys Trp Gln Arg Cys Arg Leu Ser Trp Glu Ser  
   1                          5                          10                          15

Glu Pro Leu Trp Leu Phe Gly Arg Leu Met Val Thr Leu Lys Tyr Cys  
                           20                          25                          30

Leu Pro Leu Val Ser Arg Pro Ser Ser Ile Arg Trp Glu Arg Arg Pro  
                           35                          40                          45

Gln Xaa Met Cys Leu Ser Asp His Gly Ala Ser Cys Pro Ala Leu Gly  
                           50                          55                          60

Lys Thr Glu Thr Lys Ser Ser Gln Leu Ala Leu Gly Glu Gly Leu Phe  
   65                          70                          75                          80

Pro Leu Pro Leu Ala His Phe Gln Glu Phe Asp Ser Glu Ser Arg Ala  
                           85                          90                          95

Ala Val Pro Gly Arg Val Cys Thr His Ile Cys Val Gly Arg Lys Lys  
                           100                          105                          110

Arg Thr

<210> 1176

<211> 188

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (182)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1176

Gln Arg Leu Glu Ser Gly Asp Cys Ile Gly Val Leu Asp Cys Glu Trp  
1 5 10 15

Cys Met Val Asp Ser Asp Gly Lys Thr His Leu Asp Lys Pro Tyr Cys  
20 25 30

Ala Pro Gln Lys Glu Cys Phe Gly Gly Ile Val Gly Ala Lys Ser Pro  
35 40 45

Tyr Val Asp Asp Met Gly Ala Ile Gly Asp Glu Val Ile Thr Leu Asn  
50 55 60

Met Ile Lys Ser Ala Pro Val Gly Pro Val Ala Gly Gly Ile Met Gly  
65 70 75 80

Cys Ile Met Val Leu Val Leu Ala Val Tyr Ala Tyr Arg His Gln Ile  
85 90 95

His Arg Arg Ser His Gln His Met Ser Pro Leu Ala Ala Gln Glu Met  
100 105 110

Ser Val Arg Met Ser Asn Leu Glu Asn Asp Arg Asp Glu Arg Asp Asp  
115 120 125

Asp Ser His Glu Asp Arg Gly Ile Ile Ser Asn Thr Arg Phe Ile Ala  
130 135 140

Ala Val Ile Glu Arg His Ala His Ser Pro Glu Arg Arg Arg Arg Tyr  
145 150 155 160

Trp Gly Arg Ser Gly Thr Glu Ser Asp His Gly Tyr Ser Thr Met Ser  
165 170 175

Pro Gln Glu Asp Ser Xaa Lys Ser Ser Met Gln Gln  
180 185

&lt;210&gt; 1177

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1177

His Ile Ala Lys Val Ser Cys Thr Leu Leu Gln Gly Asn Val Ser Phe  
 1 5 10 15  
 Met Ala Leu Lys His Leu Gly Lys Lys Lys Met Phe Lys Arg Ile Asn  
 20 25 30  
 Arg Ala Val Val Cys Ile Arg Met Cys Val Ile Cys Val Phe Tyr Lys  
 35 40 45  
 Leu Ser Ile Gly Gly Phe Arg Val Leu Lys Cys Gln His Ile Pro Ser  
 50 55 60  
 Pro Phe Val Ser Gln Ala Asn Met Arg Glu Asn Arg Lys Val Leu Ala  
 65 70 75 80  
 Val Gly Ile Gly Ser Ser Gly Gly Gln Met Ser Leu Pro Asp Pro  
 85 90 95

&lt;210&gt; 1178

&lt;211&gt; 197

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (10)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1178

Asn Ser Leu Thr Leu Ala Leu Pro Arg Xaa Thr Thr Ser His Asn Ser  
 1 5 10 15  
 Leu Thr Thr Pro Cys Tyr Thr Pro Tyr Tyr Val Ala Pro Glu Val Leu  
 20 25 30  
 Gly Pro Glu Lys Tyr Asp Lys Ser Cys Asp Met Trp Ser Leu Gly Val  
 35 40 45  
 Ile Met Tyr Ile Leu Leu Cys Gly Tyr Pro Pro Phe Tyr Ser Asn His  
 50 55 60



Gly Leu Ala Ile Ser Pro Gly Met Lys Thr Arg Ile Arg Met Gly Gln  
65 70 75 80

Tyr Glu Phe Pro Asn Pro Glu Trp Ser Glu Val Ser Glu Glu Val Lys  
85 90 95

Met Leu Ile Arg Asn Leu Leu Lys Thr Glu Pro Thr Gln Arg Met Thr  
100 105 110

Ile Thr Glu Phe Met Asn His Pro Trp Ile Met Gln Ser Thr Lys Val  
115 120 125

Pro Gln Thr Pro Leu His Thr Ser Arg Val Leu Lys Glu Asp Lys Glu  
130 135 140

Arg Trp Glu Asp Val Lys Glu Glu Met Thr Ser Ala Leu Ala Thr Met  
145 150 155 160

Arg Val Asp Tyr Glu Gln Ile Lys Ile Lys Lys Ile Glu Asp Ala Ser  
165 170 175

Asn Pro Leu Leu Leu Lys Arg Arg Lys Lys Ala Arg Ala Leu Glu Ala  
180 185 190

Ala Ala Leu Ala His  
195

<210> 1179

<211> 249

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (65)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (71)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (84)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE  
<222> (109)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (224)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (226)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1179  
His Glu Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys  
1 5 10 15  
Arg Lys Thr Phe Ser Gln Met Thr His Leu Thr Gln His Gln Thr Thr  
20 25 30  
His Thr Arg Glu Lys Phe His Glu Cys Ser Glu Cys Gly Lys Ala Phe  
35 40 45  
Ser Arg Val Ser Ala Leu Ile Asp His Gln Arg Ile His Ser Gly Glu  
50 55 60  
Xaa Pro Tyr Glu Cys Lys Xaa Cys Gly Arg Ala Phe Thr Gln Ser Ala  
65 70 75 80  
Gln Leu Ile Xaa His Gln Lys Thr His Ser Gly Glu Lys Pro Tyr Glu  
85 90 95  
Cys Ser Lys Cys Lys Lys Ser Phe Val His Leu Ser Xaa Leu Ile Glu  
100 105 110  
His Trp Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Asp Cys  
115 120 125  
Lys Lys Thr Phe Cys Arg Val Met Gln Phe Thr Leu His Arg Arg Ile  
130 135 140  
His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ser Phe  
145 150 155 160  
Ser Ala His Ser Ser Leu Val Thr His Lys Arg Thr His Ser Gly Glu  
165 170 175  
Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Ser Ala His Ser  
180 185 190

Ser Leu Val Thr His Lys Arg Thr His Ser Gly Glu Lys Pro Tyr Thr  
195 200 205

Cys His Ala Cys Gly Lys Ala Phe Asn Thr Ser Ser Thr Leu Cys Xaa  
210 215 220

His Xaa Arg Ile His Thr Gly Glu Lys Pro Phe Gln Cys Ser Gln Cys  
225 230 235 240

Gly Lys Ser Leu Val Phe Ser Cys Arg  
245

<210> 1180

<211> 377

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (324)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (360)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (362)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1180

Glu Asp Arg Glu Ala Glu Pro Gln Ile Ala Ala Xaa Asn Leu Lys Phe  
1 5 10 15

Gln Gly Ala Ser Asn Leu Thr Leu Ser Glu Thr Gln Asn Gly Asp Val  
20 25 30

Ser Glu Glu Thr Met Gly Ser Arg Lys Val Lys Lys Ser Lys Gln Lys  
35 40 45

Pro Met Asn Val Gly Leu Ser Glu Thr Gln Asn Gly Gly Met Ser Gln  
50 55 60

Glu Ala Val Gly Asn Ile Lys Val Thr Lys Ser Pro Gln Lys Ser Thr  
65 70 75 80

Val Leu Ser Asn Gly Glu Ala Ala Met Gln Ser Ser Asn Ser Glu Ser  
85 90 95

Lys Lys Lys Lys Lys Lys Lys Arg Lys Met Val Asn Asp Ala Glu Pro  
100 105 110

Asp Thr Lys Lys Ala Lys Thr Glu Asn Lys Gly Lys Ser Glu Glu Glu  
115 120 125

Ser Ala Glu Thr Thr Lys Glu Thr Glu Asn Asn Val Glu Lys Pro Asp  
130 135 140

Asn Asp Glu Asp Glu Ser Glu Val Pro Ser Leu Pro Leu Gly Leu Thr  
145 150 155 160

Gly Ala Phe Glu Asp Thr Ser Phe Ala Ser Leu Cys Asn Leu Val Asn  
165 170 175

Glu Asn Thr Leu Lys Ala Ile Lys Glu Met Gly Phe Thr Asn Met Thr  
180 185 190

Glu Ile Gln His Lys Ser Ile Arg Pro Leu Leu Glu Gly Arg Asp Leu  
195 200 205

Leu Ala Ala Ala Lys Thr Gly Ser Gly Lys Thr Leu Ala Phe Leu Ile  
210 215 220

Pro Ala Val Glu Leu Ile Val Lys Leu Arg Phe Met Pro Arg Asn Gly  
225 230 235 240

Thr Gly Val Leu Ile Leu Ser Pro Thr Arg Glu Leu Ala Met Gln Thr  
245 250 255

Phe Gly Val Leu Lys Glu Leu Met Thr His His Val His Thr Tyr Gly  
260 265 270

Leu Ile Met Gly Gly Ser Asn Arg Ser Ala Glu Ala Gln Lys Leu Gly  
275 280 285

Asn Gly Ile Asn Ile Ile Val Ala Thr Pro Gly Arg Leu Leu Asp His  
290 295 300

Met Gln Asn Thr Pro Gly Phe Met Tyr Lys Asn Leu Gln Cys Leu Val  
305 310 315 320

Ile Asp Glu Xaa Asp Arg Ile Leu Asp Val Gly Phe Glu Glu Glu Leu  
325 330 335

Lys Gln Ile Ile Lys Leu Leu Pro Thr Arg Arg Gln Thr Met Leu Phe  
340 345 350

Ser Ala Thr Gln Thr Arg Lys Xaa Glu Xaa Leu Ala Arg Ile Ser Leu  
355 360 365

Lys Lys Glu Pro Leu Val Cys Trp Arg  
370 375

<210> 1181

<211> 422

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (53)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (129)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (248)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1181

Ser His Leu Leu Gln Thr Thr Tyr Pro Lys Gln Arg Met Pro Asp Arg  
1 5 10 15

Arg His Ser Lys Ser Ala Gln Ile Ile Xaa Xaa Pro Val Pro Tyr Gln  
20 25 30

Xaa Xaa Ser His Thr Ser Tyr Leu Tyr Thr Gln Tyr Ala Pro Val Pro  
35 40 45

Phe Gly Ile Pro Xaa Pro Met Pro Xaa Pro Met Leu Ile Pro Ser Ser  
50 55 60

Met Asp Ser Glu Asp Lys Val Thr Glu Ser Ile Glu Asp Ile Lys Glu  
65 70 75 80

Lys Leu Pro Thr His Pro Phe Glu Ala Asp Leu Leu Glu Met Ala Glu  
85 90 95

Met Ile Ala Glu Asp Glu Glu Lys Lys Thr Leu Ser Gln Gly Glu Ser  
100 105 110

Gln Thr Ser Glu His Glu Leu Phe Leu Asp Thr Lys Ile Phe Glu Lys  
115 120 125

Xaa Gln Gly Ser Thr Tyr Ser Gly Asp Leu Glu Ser Glu Ala Val Ser  
130 135 140

Thr Pro His Ser Trp Glu Glu Glu Leu Asn His Tyr Ala Leu Lys Ser  
145 150 155 160

Asn Ala Val Gln Glu Ala Asp Ser Glu Leu Lys Gln Phe Ser Lys Gly  
165 170 175

Glu Thr Glu Arg Thr Trp Lys Gln Ile Phe His Gln Thr Pro Leu Thr  
180 185 190

His Leu Ile Lys Asp Gly Asn Pro Gly Thr Phe Pro Asn Arg Arg Arg  
195 200 205

His Arg Asp Gly Phe Pro Gln Pro Arg Arg Arg Gly Arg Lys Lys Ser  
210 215 220

Ile Val Ala Val Glu Pro Arg Ser Leu Ile Gln Gly Ala Phe Gln Gly  
225 230 235 240

Cys Ser Val Ser Gly Met Thr Xaa Lys Tyr Met Tyr Gly Val Asn Ala  
245 250 255

Trp Lys Asn Trp Val Gln Trp Lys Asn Ala Lys Glu Glu Gln Gly Asp  
260 265 270

Leu Lys Cys Gly Gly Val Glu Gln Ala Ser Ser Ser Pro Arg Ser Asp  
275 280 285

Pro Leu Gly Ser Thr Gln Asp His Ala Leu Ser Gln Glu Ser Ser Glu  
290 295 300

Pro Gly Cys Arg Val Arg Ser Ile Lys Leu Lys Glu Asp Ile Leu Ser  
305 310 315 320

Cys Thr Phe Ala Glu Leu Ser Leu Gly Leu Cys Gln Phe Ile Gln Glu  
325 330 335

Val Arg Arg Pro Asn Gly Glu Lys Tyr Asp Pro Asp Ser Ile Leu Tyr  
340 345 350

Leu Cys Leu Gly Ile Gln Gln Tyr Leu Phe Glu Asn Gly Arg Ile Asp  
355 360 365

Asn Ile Phe Thr Glu Pro Tyr Ser Arg Phe Met Ile Glu Leu Thr Lys  
370 375 380

Leu Leu Lys Ile Trp Glu Pro Thr Ile Leu Pro Asn Gly Tyr Met Phe  
385 390 395 400

Ser Arg Ile Glu Glu Glu His Leu Trp Glu Cys Lys Gln Leu Gly Ala  
405 410 415

Tyr Ser Pro Ile Ala Phe  
420

<210> 1182

<211> 26

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1182

Lys Thr Gly Ala Cys Pro Glu Asp Xaa Lys Tyr Cys Pro Gln Ser Ser  
1 5 10 15

Arg Tyr Lys Thr Gly Leu Glu Pro Xaa Gly  
20 25

<210> 1183

<211> 17

<212> PRT

<213> Homo sapiens

<400> 1183

Gly Gln Glu Ile Glu Thr Val Leu Ala Asn Met Val Lys Pro Arg Leu  
1 5 10 15

Tyr

<210> 1184

<211> 165

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (158)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1184

Cys Asp Ser Trp Asn Ala Val Met Ser Thr Leu Cys Pro Pro Pro Ser  
1 5 10 15

Pro Ala Val Ala Lys Thr Glu Ile Ala Leu Ser Gly Lys Ser Pro Leu  
20 25 30

Leu Ala Ala Thr Phe Ala Tyr Trp Asp Asn Ile Leu Gly Pro Arg Val  
35 40 45

Arg His Ile Trp Ala Pro Lys Thr Glu Gln Val Leu Leu Ser Asp Gly  
50 55 60

Glu Ile Thr Phe Leu Ala Asn His Thr Leu Asn Gly Glu Ile Leu Arg  
65 70 75 80



Asn Ala Glu Ser Gly Ala Ile Asp Val Lys Phe Phe Val Leu Ser Glu  
                     85                    90                    95

Lys Gly Val Ile Ile Val Ser Leu Ile Phe Asp Gly Asn Trp Asn Gly  
                     100                    105                    110

Asp Arg Ser Thr Tyr Gly Leu Ser Ile Ile Leu Pro Gln Thr Glu Leu  
                     115                    120                    125

Ser Phe Tyr Leu Pro Leu His Arg Val Cys Val Asp Arg Leu Thr His  
                     130                    135                    140

Ile Ile Arg Lys Gly Arg Ile Trp Met His Lys Glu Arg Xaa Glu Met  
                     145                    150                    155                    160

Ser Arg Arg Leu Ser  
                     165

<210> 1185

<211> 110

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (79)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (91)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (96)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1185

Gly Thr Ala Phe Thr Arg Gln Cys Ser Gln Gly Pro Trp Tyr Arg Ala  
                     1                    5                    10                    15

Arg Ser Arg Val Pro Gln Val Val Arg Leu Pro Gly Pro His Leu Glu  
                     20                    25                    30

Pro Ser Leu Cys Ser Phe Glu Ser Arg Cys Cys Pro Thr Pro Ile Pro  
                     35                    40                    45

Asn Gln Pro Pro Pro Pro Ala Ser Leu Pro Ser Val Pro Phe Ile Leu  
50 55 60

Pro Gly Val Pro Ser Ala Cys His Gly Thr Ala Cys Tyr Leu Xaa Gln  
65 70 75 80

Leu Gln Met Pro Ala Leu Asn Leu Pro Trp Xaa Pro Phe Leu Tyr Xaa  
85 90 95

Val Asn Ser Leu Asn Ser Ala Leu Pro Leu Pro Ala Leu Lys  
100 105 110

<210> 1186

<211> 352

<212> PRT

<213> Homo sapiens

<400> 1186

Cys Arg Ser Pro Glu Ala Ser Val Leu Phe Pro Glu Val Ser Gly Leu  
1 5 10 15

Gly Gln Pro Pro Ser Ser Ser Leu Arg Met Ala Ser Ser Ser Gly Ser  
20 25 30

Lys Ala Glu Phe Ile Val Gly Gly Lys Tyr Lys Leu Val Arg Lys Ile  
35 40 45

Gly Ser Gly Ser Phe Gly Asp Ile Tyr Leu Ala Ile Asn Ile Thr Asn  
50 55 60

Gly Glu Glu Val Ala Val Lys Leu Glu Ser Gln Lys Ala Arg His Pro  
65 70 75 80

Gln Leu Leu Tyr Glu Ser Lys Leu Tyr Lys Ile Leu Gln Gly Gly Val  
85 90 95

Gly Ile Pro His Ile Arg Trp Tyr Gly Gln Glu Lys Asp Tyr Asn Val  
100 105 110

Leu Val Met Asp Leu Leu Gly Pro Ser Leu Glu Asp Leu Phe Asn Phe  
115 120 125

Cys Ser Arg Arg Phe Thr Met Lys Thr Val Leu Met Leu Ala Asp Gln  
130 135 140

Met Ile Ser Arg Ile Glu Tyr Val His Thr Lys Asn Phe Ile His Arg  
145 150 155 160

Asp Ile Lys Pro Asp Asn Phe Leu Met Gly Ile Gly Arg His Cys Asn

165 170 175  
Lys Leu Phe Leu Ile Asp Phe Gly Leu Ala Lys Lys Tyr Arg Asp Asn  
180 185 190  
Arg Thr Arg Gln His Ile Pro Tyr Arg Glu Asp Lys Asn Leu Thr Gly  
195 200 205  
Thr Ala Arg Tyr Ala Ser Ile Asn Ala His Leu Gly Ile Glu Gln Ser  
210 215 220  
Arg Arg Asp Asp Met Glu Ser Leu Gly Tyr Val Leu Met Tyr Phe Asn  
225 230 235 240  
Arg Thr Ser Leu Pro Trp Gln Gly Leu Lys Ala Ala Thr Lys Lys Gln  
245 250 255  
Lys Tyr Glu Lys Ile Ser Glu Lys Lys Met Ser Thr Pro Val Glu Val  
260 265 270  
Leu Cys Lys Gly Phe Pro Ala Glu Phe Ala Met Tyr Leu Asn Tyr Cys  
275 280 285  
Arg Gly Leu Arg Phe Glu Glu Ala Pro Asp Tyr Met Tyr Leu Arg Gln  
290 295 300  
Leu Phe Arg Ile Leu Phe Arg Thr Leu Asn His Gln Tyr Asp Tyr Thr  
305 310 315 320  
Phe Asp Trp Asp Asn Val Lys Ala Glu Ser Ser Thr Ala Gly Ser Leu  
325 330 335  
Phe Gln Trp Ala Gly Ser Ala Gly Pro Asn Pro His Arg Gln Ala Asn  
340 345 350

<210> 1187

<211> 482

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (11)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (105)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (259)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (450)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (459)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (475)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1187

Ala Gly Leu Val Ala Ala Gly Ala Val Arg Xaa Leu Tyr Pro Ala Ser  
1 5 10 15

Arg Ala Gly Glu Arg Thr Arg Val Pro Gly Ser Pro Ala Pro Xaa Ser  
20 25 30

Leu Pro Leu His Ser Pro Gly Ala Cys Gly Thr Glu Val Asp Met Asp  
35 40 45

Pro Gln Arg Ser Pro Leu Leu Glu Val Lys Gly Asn Ile Glu Leu Lys  
50 55 60

Arg Pro Leu Ile Lys Ala Pro Ser Gln Leu Pro Leu Ser Gly Ser Arg  
65 70 75 80

Leu Lys Arg Arg Pro Asp Gln Met Glu Asp Gly Leu Glu Pro Glu Lys  
85 90 95

Lys Arg Thr Arg Gly Leu Gly Ala Xaa Thr Lys Ile Thr Thr Ser His  
100 105 110

Pro Arg Val Pro Ser Leu Thr Thr Val Pro Gln Thr Gln Gly Gln Thr  
115 120 125

Thr Ala Gln Lys Val Ser Lys Lys Thr Gly Pro Arg Cys Ser Thr Ala  
130 135 140

Ile Ala Thr Gly Leu Lys Asn Gln Lys Pro Val Pro Ala Val Pro Val  
145 150 155 160

Gln Lys Ser Gly Thr Ser Gly Val Pro Pro Met Ala Gly Gly Lys Lys  
165 170 175

Pro Ser Lys Arg Pro Ala Trp Asp Leu Lys Gly Gln Leu Cys Asp Leu  
180 185 190

Asn Ala Glu Leu Lys Arg Cys Arg Glu Arg Thr Gln Thr Leu Asp Gln  
195 200 205

Glu Asn Gln Gln Leu Gln Asp Gln Leu Arg Asp Ala Gln Gln Gln Val  
210 215 220

Lys Ala Leu Gly Thr Glu Arg Thr Thr Leu Glu Gly His Leu Ala Lys  
225 230 235 240

Val Gln Ala Gln Ala Glu Gln Gly Gln Gln Glu Leu Lys Asn Leu Arg  
245 250 255

Ala Cys Xaa Leu Glu Leu Glu Glu Arg Leu Ser Thr Gln Glu Gly Leu  
260 265 270

Val Gln Glu Leu Gln Lys Lys Gln Val Glu Leu Gln Glu Glu Arg Arg  
275 280 285

Gly Leu Met Ser Gln Leu Glu Glu Lys Glu Arg Arg Leu Gln Thr Ser  
290 295 300

Glu Ala Ala Leu Ser Ser Ser Gln Ala Glu Val Ala Ser Leu Arg Gln  
305 310 315 320

Glu Thr Val Ala Gln Ala Ala Leu Leu Thr Glu Arg Glu Glu Arg Leu  
325 330 335

His Gly Leu Glu Met Glu Arg Arg Arg Leu His Asn Gln Leu Gln Glu  
340 345 350

Leu Lys Gly Asn Ile Arg Val Phe Cys Arg Val Arg Pro Val Leu Pro  
355 360 365

Gly Glu Pro Thr Pro Pro Pro Gly Leu Leu Leu Phe Pro Ser Gly Pro  
370 375 380

Gly Gly Pro Ser Asp Pro Pro Thr Arg Leu Ser Leu Ser Arg Ser Asp  
 385 390 395 400  
 Glu Arg Arg Gly Thr Leu Ser Gly Ala Pro Ala Pro Pro Thr Arg His  
 405 410 415  
 Asp Phe Ser Phe Asp Arg Val Phe Pro Pro Gly Ser Gly Gln Asp Glu  
 420 425 430  
 Val Phe Glu Glu Ile Ala Met Leu Val Gln Ser Ala Leu Asp Gly Tyr  
 435 440 445  
 Pro Xaa Cys Ile Phe Ala Tyr Gly Gln Thr Xaa Ser Gly Lys Thr Phe  
 450 455 460  
 Thr Met Glu Gly Gly Leu Gly Glu Thr Pro Xaa Gly Arg Ala Asp Pro  
 465 470 475 480  
 Ser Gly

&lt;210&gt; 1188

&lt;211&gt; 345

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (175)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1188

Thr Ala Ser Leu Ser Asn Ala Val Lys Ile Leu Leu Arg Trp Val Thr  
 1 5 10 15  
 Arg Tyr Ser Cys Pro Arg Ala Phe Val Thr Gly Met Pro Lys Arg Gly  
 20 25 30  
 Lys Lys Gly Ala Val Ala Glu Asp Gly Asp Glu Leu Arg Thr Glu Pro  
 35 40 45  
 Glu Ala Lys Lys Ser Lys Thr Ala Ala Lys Lys Asn Asp Lys Glu Ala  
 50 55 60  
 Ala Gly Glu Gly Pro Ala Leu Tyr Glu Asp Pro Pro Asp Gln Lys Thr  
 65 70 75 80  
 Ser Pro Ser Gly Lys Pro Ala Thr Leu Lys Ile Cys Ser Trp Asn Val  
 85 90 95

Asp Gly Leu Arg Ala Trp Ile Lys Lys Lys Gly Leu Asp Trp Val Lys  
100 105 110

Glu Glu Ala Pro Asp Ile Leu Cys Leu Gln Glu Thr Lys Cys Ser Glu  
115 120 125

Asn Lys Leu Pro Ala Glu Leu Gln Glu Leu Pro Gly Leu Ser His Gln  
130 135 140

Tyr Trp Ser Ala Pro Ser Asp Lys Glu Gly Tyr Ser Gly Val Gly Leu  
145 150 155 160

Leu Ser Arg Gln Cys Pro Leu Lys Val Ser Tyr Gly Ile Gly Xaa Glu  
165 170 175

Glu His Asp Gln Glu Gly Arg Val Ile Val Ala Glu Phe Asp Ser Phe  
180 185 190

Val Leu Val Thr Ala Tyr Val Pro Asn Ala Gly Arg Gly Leu Val Arg  
195 200 205

Leu Glu Tyr Arg Gln Arg Trp Asp Glu Ala Phe Arg Lys Phe Leu Lys  
210 215 220

Gly Leu Ala Ser Arg Lys Pro Leu Val Leu Cys Gly Asp Leu Asn Val  
225 230 235 240

Ala His Glu Glu Ile Asp Leu Arg Asn Pro Lys Gly Asn Lys Lys Asn  
245 250 255

Ala Gly Phe Thr Pro Gln Glu Arg Gln Gly Phe Gly Glu Leu Leu Gln  
260 265 270

Ala Val Pro Leu Ala Asp Ser Phe Arg His Leu Tyr Pro Asn Thr Pro  
275 280 285

Tyr Ala Tyr Thr Phe Trp Thr Tyr Met Met Asn Ala Arg Ser Lys Asn  
290 295 300

Val Gly Trp Arg Leu Asp Tyr Phe Leu Leu Ser His Ser Leu Leu Pro  
305 310 315 320

Ala Leu Cys Asp Ser Lys Ile Arg Ser Lys Ala Leu Gly Ser Asp His  
325 330 335

Cys Pro Ile Thr Leu Tyr Leu Ala Leu  
340 345

<210> 1189  
<211> 136  
<212> PRT  
<213> Homo sapiens

<400> 1189  
Asp Ile Ser Thr Pro Ser Leu Thr Thr Asp His Ala Pro Leu Thr Ile  
1 5 10 15  
Ser Leu Lys Pro Asn His Pro Tyr Arg Thr Gln Cys Gln Tyr Pro Ile  
20 25 30  
Pro Gln His Ala Leu Lys Arg Leu Lys Pro Val Ile Ile Arg Leu Leu  
35 40 45  
Gln His Gly Leu Leu Asn Pro Ile Asn Ser Pro Tyr Asn Ser Pro Ile  
50 55 60  
Phe Pro Val Leu Lys Arg Asp Lys Pro Tyr Lys Leu Val Gln Asp Leu  
65 70 75 80  
Arg Leu Ile Asn Gln Ile Val Leu Pro Ile His Pro Val Val Pro Asn  
85 90 95  
Pro Tyr Thr Leu Leu Ser Ser Ile Pro Pro Ser Thr Thr His Tyr Ser  
100 105 110  
Val Leu Asp Leu Arg His Ala Phe Phe Thr Ile Ala Leu His Pro Ser  
115 120 125  
Ser Gln Pro Leu Phe Ala Phe Thr  
130 135

<210> 1190  
<211> 128  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1190

Leu Xaa Gln Lys Thr Gln Pro Thr His Glu Lys Xaa Ala Xaa Ser Phe  
1 5 10 15  
Leu Gly Met Val Cys Ile Trp Val Xaa Ser Ile Gln Thr Ser Ile Asn  
20 25 30  
Thr Ser Phe Ile Leu Gly Leu Pro Asn Ser Phe Pro Gln Asp Leu Lys  
35 40 45  
Thr Ile Thr Met Ile Lys Val Ser Phe Ala Pro Cys Gln Arg Leu Gly  
50 55 60  
Pro Leu Pro Phe Pro Ser Arg Gln Tyr Ser Val Gln Leu Gly Leu Val  
65 70 75 80  
Pro Ser Leu Ser Val Arg Thr Glu Phe His Pro Arg Phe Ser Thr Gln  
85 90 95  
Ala Leu Cys Ser Gly Lys Val Lys Pro Ser Leu Lys Gly Ser Lys Ser  
100 105 110  
Ser Ala Ile Asp Arg Ala Ala Gly Gly Lys Arg Ser Arg Cys Ile Arg  
115 120 125

<210> 1191

<211> 236

<212> PRT

<213> Homo sapiens

<400> 1191

Arg Ala Gly Ser Val Lys Arg Arg Gln Arg Gly Lys Met Ala Ala Ala  
1 5 10 15  
Val Pro Gln Arg Ala Trp Thr Val Glu Gln Leu Arg Ser Glu Gln Leu  
20 25 30

Pro Lys Lys Asp Ile Ile Lys Phe Leu Gln Glu His Gly Ser Asp Ser  
           35                          40                          45  
 Phe Leu Ala Glu His Lys Leu Leu Gly Asn Ile Lys Asn Val Ala Lys  
           50                          55                          60  
 Thr Ala Asn Lys Asp His Leu Val Thr Ala Tyr Asn His Leu Phe Glu  
           65                          70                          75                          80  
 Thr Lys Arg Phe Lys Gly Thr Glu Ser Ile Ser Lys Val Ser Glu Gln  
                           85                          90                          95  
 Val Lys Asn Val Lys Leu Asn Glu Asp Lys Pro Lys Glu Thr Lys Ser  
                           100                          105                          110  
 Glu Glu Thr Leu Asp Glu Gly Pro Pro Lys Tyr Thr Lys Ser Val Leu  
           115                          120                          125  
 Lys Lys Gly Asp Lys Thr Asn Phe Pro Lys Lys Gly Asp Val Val His  
           130                          135                          140  
 Cys Trp Tyr Thr Gly Thr Leu Gln Asp Gly Thr Val Phe Asp Thr Asn  
           145                          150                          155                          160  
 Ile Gln Thr Ser Ala Lys Lys Lys Lys Asn Ala Lys Pro Leu Ser Phe  
                           165                          170                          175  
 Lys Val Gly Val Gly Lys Val Ile Arg Gly Trp Asp Glu Ala Leu Leu  
           180                          185                          190  
 Thr Met Ser Lys Gly Glu Lys Ala Arg Leu Glu Ile Glu Pro Glu Trp  
           195                          200                          205  
 Ala Tyr Gly Lys Lys Gly Gln Pro Asp Ala Lys Ile Pro Pro Asn Ala  
           210                          215                          220  
 Lys Leu Thr Phe Glu Val Glu Leu Val Asp Ile Asp  
           225                          230                          235

&lt;210&gt; 1192

&lt;211&gt; 204

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1192

Pro Ala Met Glu Ala Glu Ala Gly Gly Leu Glu Glu Leu Thr Asp Glu  
           1                          5                          10                          15

Glu Met Ala Ala Leu Gly Lys Glu Glu Leu Val Arg Arg Leu Arg Arg

20 25 30

Glu Glu Ala Ala Arg Leu Ala Ala Leu Val Gln Arg Gly Arg Leu Met  
35 40 45

Gln Glu Val Asn Arg Gln Leu Gln Gly His Leu Gly Glu Ile Arg Glu  
50 55 60

Leu Lys Gln Leu Asn Arg Arg Leu Gln Ala Glu Asn Arg Glu Leu Arg  
65 70 75 80

Asp Leu Cys Cys Phe Leu Asp Ser Glu Arg Gln Arg Gly Arg Arg Ala  
85 90 95

Ala Arg Gln Trp Gln Leu Phe Gly Thr Gln Ala Ser Arg Ala Val Arg  
100 105 110

Glu Asp Leu Gly Gly Cys Trp Gln Lys Leu Ala Glu Leu Glu Gly Arg  
115 120 125

Gln Glu Glu Leu Leu Arg Glu Asn Leu Ala Leu Lys Glu Leu Cys Leu  
130 135 140

Ala Leu Gly Glu Glu Trp Gly Pro Arg Gly Gly Pro Ser Gly Ala Gly  
145 150 155 160

Gly Ser Gly Ala Gly Pro Ala Pro Glu Leu Ala Leu Pro Pro Cys Gly  
165 170 175

Pro Arg Asp Leu Gly Asp Gly Ser Ser Ser Thr Gly Ser Val Gly Ser  
180 185 190

Pro Asp Gln Leu Pro Leu Ala Cys Ser Pro Asp Asp  
195 200

<210> 1193

<211> 66

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (56)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1193

Ser Gln Gln Thr Glu Leu Ile Thr Val Ile Leu Gly Val Phe Phe Cys  
 1 5 10 15

Arg Val Lys His Val Asn Ile Leu His Arg His Lys Tyr Lys His Asp  
 20 25 30

Lys His Trp Thr Trp Lys Met Gly Ser Lys Phe Cys Thr Cys Ala Phe  
 35 40 45

Leu Tyr Phe Cys Cys Ile Phe Xaa Ser Cys Xaa Phe Ala Lys Tyr Ile  
 50 55 60

Ile Asn  
 65

&lt;210&gt; 1194

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1194

Thr Cys Ala Gly Pro Arg Gly Ala Ala Cys Gly Arg Leu Arg Leu Pro  
 1 5 10 15

Ala Ala Gly Ala Leu Leu Pro Ala Ala Gln Arg Arg Val His Arg Tyr  
 20 25 30

Glu Glu Ser Glu Val Ile Ser Leu Pro Phe Leu Asp Gln Leu Val Ser  
 35 40 45

Thr Leu Val Gly Leu Leu Ser Pro His Asn Pro Ala Leu Ala Ala Ala  
 50 55 60

Ala Leu Asp Tyr Arg Cys Pro Val His Phe Tyr Trp Val Arg Gly Glu  
 65 70 75 80

Glu Ile Ile Pro Arg Gly His Arg Arg Gly Arg Ile Asp Asp Leu Arg  
 85 90 95

Tyr Gln Ile Asp Asp Lys Pro Asn Asn Gln Ile Arg Ile Ser Lys Gln  
 100 105 110

Leu Ala Glu Phe Val Pro Leu Asp Tyr Ser Val Pro Ile Glu Ile Pro  
 115 120 125

Thr Ile Lys Cys Lys Pro Asp Lys Leu Pro Leu Phe Lys Arg Gln Tyr  
 130 135 140

Glu Asn His Ile Phe Val Gly Ser Lys Thr Ala Asp Pro Cys Cys Tyr  
145 150 155 160

Gly His Thr Gln Phe His Leu Leu Pro Asp Lys Leu Arg Arg Glu Arg  
165 170 175

Leu Leu Arg Gln Asn Cys Ala Asp Gln Ile Glu Val Val Phe Arg Ala  
180 185 190

Asn Ala Ile Ala Ser Leu Phe Ala Trp Thr Gly Ala Gln Ala Met Tyr  
195 200 205

Gln Gly Phe Trp Ser Glu Ala Asp Val Thr Arg Pro Phe Val Ser Gln  
210 215 220

Ala Val Ile Thr Asp Gly Lys Tyr Phe Ser Phe Phe Cys Tyr Gln Leu  
225 230 235 240

Asn Thr Leu Ala Leu Thr Thr Gln Ala Asp Gln Asn Asn Pro Arg Lys  
245 250 255

Asn Ile Cys Trp Gly Thr Gln Ser Lys Pro Leu Tyr Glu Thr Ile Glu  
260 265 270

Asp Asn Asp Val Lys Gly Phe Asn Asp Asp Val Leu Leu Gln Ile Val  
275 280 285

His Phe Leu Leu Asn Arg Pro Lys Glu Glu Lys Ser Gln Leu Leu Glu  
290 295 300

Asn  
305

<210> 1195

<211> 102

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (28)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1195

Gly Arg Ala Ala Pro Gln Leu Gln Asp Leu Ala Ser Ser Cys Pro Gln  
 1 5 10 15

Glu Glu Val Ser Gln Gln Gln Glu Ser Val Ser Xaa Leu Pro Ala Ser  
 20 25 30

Val His Pro Gln Leu Xaa His Gly Arg Ala Trp Arg Pro Ser Thr Cys  
 35 40 45

Ser Thr Asp Ser Arg Ser Pro Ala Phe Cys Gln Arg Pro Arg Thr Pro  
 50 55 60

Val Ser Ile Cys Cys Arg Ile Lys Arg Leu Phe Leu Gln Lys Gln Ser  
 65 70 75 80

Gln Leu Gln Ala Tyr Phe Asn Gln Met Gln Ile Ala Glu Ser Ser Tyr  
 85 90 95

Pro Gln Pro Ser Gln Gln  
 100

&lt;210&gt; 1196

&lt;211&gt; 123

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1196

Ala Arg Gly Pro Ala Ala Ala Cys Pro Leu Arg Trp Pro Pro Ala Ala  
 1 5 10 15

Ala Arg Ala Met Ala Gly Lys Ala His Arg Leu Ser Ala Glu Glu Arg  
 20 25 30

Asp Gln Leu Leu Pro Asn Leu Arg Ala Val Gly Trp Asn Glu Leu Glu  
 35 40 45

Gly Arg Asp Ala Ile Phe Lys Gln Phe His Phe Lys Asp Phe Asn Arg  
 50 55 60

Ala Phe Gly Phe Met Thr Arg Val Ala Leu Gln Ala Glu Lys Leu Asp  
 65 70 75 80

His His Pro Glu Trp Phe Asn Val Tyr Asn Lys Val His Ile Thr Leu  
 85 90 95

Ser Thr His Glu Cys Ala Gly Leu Ser Glu Arg Asp Ile Asn Leu Ala  
 100 105 110

Ser Phe Ile Glu Gln Val Ala Val Ser Met Thr  
115 120

<210> 1197  
<211> 247  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (28)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (31)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1197  
Ala Arg Gly Gly Gly Lys Ser Gly Arg Ala Gly Gly Ala Gly Ala Arg  
1 5 10 15  
Arg Gly Gly Lys Glu Leu Arg Val Ala Ala Glu Xaa Pro Arg Xaa Gln  
20 25 30  
Arg Arg Pro Thr Gln Pro Ser Arg Arg Arg Arg Ala Pro Met Ala  
35 40 45  
Ala Ala Lys Asp Thr His Glu Asp His Asp Thr Ser Thr Glu Asn Thr  
50 55 60  
Asp Glu Ser Asn His Asp Pro Gln Phe Glu Pro Ile Val Ser Leu Pro  
65 70 75 80  
Glu Gln Glu Ile Lys Thr Leu Glu Glu Asp Glu Glu Glu Leu Phe Lys  
85 90 95  
Met Arg Ala Lys Leu Phe Arg Phe Ala Ser Glu Asn Asp Leu Pro Glu  
100 105 110  
Trp Lys Glu Arg Gly Thr Gly Asp Val Lys Leu Leu Lys His Lys Glu  
115 120 125  
Lys Gly Ala Ile Arg Leu Leu Met Arg Arg Asp Lys Thr Leu Lys Ile  
130 135 140  
Cys Ala Asn His Tyr Ile Thr Pro Met Met Glu Leu Lys Pro Asn Ala  
145 150 155 160

Gly Ser Asp Arg Ala Trp Val Trp Asn Thr His Ala Asp Phe Ala Asp  
165 170 175

Glu Cys Pro Lys Pro Glu Leu Leu Ala Ile Arg Phe Leu Asn Ala Glu  
180 185 190

Asn Ala Gln Lys Phe Lys Thr Lys Phe Glu Glu Cys Arg Lys Glu Ile  
195 200 205

Glu Glu Arg Glu Lys Lys Ala Gly Ser Gly Lys Asn Asp His Ala Glu  
210 215 220

Lys Val Ala Glu Lys Leu Glu Ala Leu Ser Val Lys Glu Glu Thr Lys  
225 230 235 240

Glu Asp Ala Glu Glu Lys Gln  
245

<210> 1198  
<211> 60  
<212> PRT  
<213> Homo sapiens

<400> 1198  
Phe Gly Phe Ser Thr Cys Ile Thr Asn Pro Ala Pro Ile Cys His Ile  
1 5 10 15

Lys Val Cys Asp Leu Lys Phe Ser Gln His Pro His Gln Thr Leu Phe  
20 25 30

Phe Tyr Val Phe Phe Ala Thr Tyr Glu Cys Phe Glu Asn Lys Val Pro  
35 40 45

Met Ser Leu Leu Glu Lys Lys Lys Lys Lys Lys  
50 55 60

<210> 1199  
<211> 198  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (189)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>



<221> SITE

<222> (194)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (195)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1199

Ser Asp Lys Trp Pro Thr Ala Val Arg Ala Asn Gly His Leu Leu Leu  
1 5 10 15

Asn Ser Glu Lys Met Ser Lys Ser Thr Gly Asn Phe Leu Thr Leu Thr  
20 25 30

Gln Ala Ile Asp Lys Phe Ser Ala Asp Gly Met Arg Leu Ala Leu Ala  
35 40 45

Asp Ala Gly Asp Thr Val Glu Asp Ala Asn Phe Val Glu Ala Met Ala  
50 55 60

Asp Ala Gly Ile Leu Arg Leu Tyr Thr Trp Val Glu Trp Val Lys Glu  
65 70 75 80

Met Val Ala Asn Trp Asp Ser Leu Arg Ser Gly Pro Ala Ser Thr Phe  
85 90 95

Asn Asp Arg Val Phe Ala Ser Glu Leu Asn Ala Gly Ile Ile Lys Thr  
100 105 110

Asp Gln Asn Tyr Glu Lys Met Met Phe Lys Glu Ala Leu Lys Thr Gly  
115 120 125

Phe Phe Glu Phe Gln Ala Ala Lys Asp Lys Tyr Arg Glu Leu Ala Val  
130 135 140

Glu Gly Met His Arg Glu Leu Val Phe Arg Phe Ile Glu Val Gln Thr  
145 150 155 160

Leu Leu Leu Ala Pro Phe Cys Pro His Leu Cys Glu Ala His Leu Gly  
165 170 175

His Ser Trp Gly Lys Pro Asp Phe Asn Tyr Gly Met Xaa Ser Trp Ala  
180 185 190

Cys Xaa Xaa Gly Pro Val  
195

<210> 1200  
<211> 174  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (16)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1200  
Leu Tyr Gly Cys Glu Lys Thr Thr Glu Gly Gly Gly Gly Arg Glu Xaa  
1 5 10 15  
Ala Gly Lys Met Val Val Thr Arg Ser Ala Arg Ala Lys Ala Ser Ile  
20 25 30  
Gln Ala Ala Ser Ala Glu Ser Ser Gly Gln Lys Ser Phe Ala Ala Asn  
35 40 45  
Gly Ile Gln Ala His Pro Glu Ser Ser Thr Gly Ser Asp Ala Arg Thr  
50 55 60  
Thr Ala Glu Ser Gln Thr Thr Gly Lys Gln Ser Leu Ile Pro Arg Thr  
65 70 75 80  
Pro Lys Ala Arg Lys Arg Lys Ser Arg Thr Thr Gly Ser Leu Pro Lys  
85 90 95  
Gly Thr Glu Pro Ser Thr Asp Gly Glu Thr Ser Glu Ala Glu Ser Asn  
100 105 110  
Tyr Ser Val Ser Glu His His Asp Thr Ile Leu Arg Val Thr Arg Arg  
115 120 125  
Arg Gln Ile Leu Ile Ala Cys Ser Pro Val Ser Ser Val Arg Lys Lys  
130 135 140  
Pro Lys Val Thr Pro Thr Lys Glu Ser Tyr Thr Glu Glu Ile Val Ser  
145 150 155 160  
Glu Ala Glu Ser His Val Ser Gly Ile Ser Arg Asn Cys Ala  
165 170

<210> 1201  
<211> 689  
<212> PRT  
<213> Homo sapiens

&lt;400&gt; 1201

Trp Ser Thr Glu Val Glu Pro Ser Gly Ile Ile Phe Lys Asn Ser Lys  
1 5 10 15

Thr Gly Lys Val Asp Asn Ile Gln Ala Gly Glu Leu Thr Glu Gly Ile  
20 25 30

Trp Arg Arg Val Ala Leu Gly His Gly Leu Lys Leu Leu Thr Lys Asn  
35 40 45

Gly His Val Tyr Lys Tyr Asp Gly Phe Arg Glu Ser Glu Phe Glu Lys  
50 55 60

Leu Ser Asp Phe Phe Lys Thr His Tyr Arg Leu Glu Leu Met Glu Lys  
65 70 75 80

Asp Leu Cys Val Lys Gly Trp Asn Trp Gly Thr Val Lys Phe Gly Gly  
85 90 95

Gln Leu Leu Ser Phe Asp Ile Gly Asp Gln Pro Val Phe Glu Ile Pro  
100 105 110

Leu Ser Asn Val Ser Gln Cys Thr Thr Gly Lys Asn Glu Val Thr Leu  
115 120 125

Glu Phe His Gln Asn Asp Asp Ala Glu Val Ser Leu Met Glu Val Arg  
130 135 140

Phe Tyr Val Pro Pro Thr Gln Glu Asp Gly Val Asp Pro Val Glu Ala  
145 150 155 160

Phe Ala Gln Asn Val Leu Ser Lys Ala Asp Val Ile Gln Ala Thr Gly  
165 170 175

Asp Ala Ile Cys Ile Phe Arg Glu Leu Gln Cys Leu Thr Pro Arg Gly  
180 185 190

Arg Tyr Asp Ile Arg Ile Tyr Pro Thr Phe Leu His Leu His Gly Lys  
195 200 205

Thr Phe Asp Tyr Lys Ile Pro Tyr Thr Thr Val Leu Arg Leu Phe Leu  
210 215 220

Leu Pro His Lys Asp Gln Arg Gln Met Phe Phe Val Ile Ser Leu Asp  
225 230 235 240

Pro Pro Ile Lys Gln Gly Gln Thr Arg Tyr His Phe Leu Ile Leu Leu  
245 250 255

Phe Ser Lys Asp Glu Asp Ile Ser Leu Thr Leu Asn Met Asn Glu Glu  
260 265 270

Glu Val Glu Lys Arg Phe Glu Gly Arg Leu Thr Lys Asn Met Ser Gly  
275 280 285

Ser Leu Tyr Glu Met Val Ser Arg Val Met Lys Ala Leu Val Asn Arg  
290 295 300

Lys Ile Thr Val Pro Gly Asn Phe Gln Gly His Ser Gly Ala Gln Cys  
305 310 315 320

Ile Thr Cys Ser Tyr Lys Ala Ser Ser Gly Leu Leu Tyr Pro Leu Glu  
325 330 335

Arg Gly Phe Ile Tyr Val His Lys Pro Pro Val His Ile Arg Phe Asp  
340 345 350

Glu Ile Ser Phe Val Asn Phe Ala Arg Gly Thr Thr Thr Thr Arg Ser  
355 360 365

Phe Asp Phe Glu Ile Glu Thr Lys Gln Gly Thr Gln Tyr Thr Phe Ser  
370 375 380

Ser Ile Glu Arg Glu Glu Tyr Gly Lys Leu Phe Asp Phe Val Asn Ala  
385 390 395 400

Lys Lys Leu Asn Ile Lys Asn Arg Gly Leu Lys Glu Gly Met Asn Pro  
405 410 415

Ser Tyr Asp Glu Tyr Ala Asp Ser Asp Glu Asp Gln His Asp Ala Tyr  
420 425 430

Leu Glu Arg Met Lys Glu Glu Gly Lys Ile Arg Glu Glu Asn Ala Asn  
435 440 445

Asp Ser Ser Asp Asp Ser Gly Glu Glu Thr Asp Glu Ser Phe Asn Pro  
450 455 460

Gly Glu Glu Glu Glu Asp Val Ala Glu Glu Phe Asp Ser Asn Ala Ser  
465 470 475 480

Ala Ser Ser Ser Ser Asn Glu Gly Asp Ser Asp Arg Asp Glu Lys Lys  
485 490 495

Arg Lys Gln Leu Lys Lys Ala Lys Met Ala Lys Asp Arg Lys Ser Arg  
500 505 510

Lys Lys Pro Val Glu Val Lys Lys Gly Lys Asp Pro Asn Ala Pro Lys  
515 520 525

Arg Pro Met Ser Ala Tyr Met Leu Trp Leu Asn Ala Ser Arg Glu Lys  
530 535 540

Ile Lys Ser Asp His Pro Gly Ile Ser Ile Thr Asp Leu Ser Lys Lys  
545 550 555 560

Ala Gly Glu Ile Trp Lys Gly Met Ser Lys Glu Lys Lys Glu Glu Trp  
565 570 575

Asp Arg Lys Ala Glu Asp Ala Arg Arg Asp Tyr Glu Lys Ala Met Lys  
580 585 590

Glu Tyr Glu Gly Gly Arg Gly Glu Ser Ser Lys Arg Asp Lys Ser Lys  
595 600 605

Lys Lys Lys Lys Val Lys Val Lys Met Glu Lys Lys Ser Thr Pro Ser  
610 615 620

Arg Gly Ser Ser Ser Lys Ser Ser Ser Arg Gln Leu Ser Glu Ser Phe  
625 630 635 640

Lys Ser Lys Glu Phe Val Ser Ser Asp Glu Ser Ser Ser Gly Glu Asn  
645 650 655

Lys Ser Lys Lys Lys Arg Arg Arg Ser Glu Asp Ser Glu Glu Glu Glu  
660 665 670

Leu Ala Ser Thr Pro Pro Ser Ser Glu Asp Ser Ala Ser Gly Ser Asp  
675 680 685

Glu

<210> 1202

<211> 65

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1202

Asn Leu Ser Glu Leu Leu Gln Ala Asp Phe Leu Gly Gln Gly Glu Ile  
1 5 10 15

Met Val Leu Lys Cys Leu Ile Arg Ser His Thr Gln Phe Gln Val His  
20 25 30

Tyr Ser Lys Ser Met Xaa Thr Ala Pro Thr Ala Thr Asn Leu Leu Leu

35 40 45  
Pro Ser Arg Val Ala Cys Thr Ile Phe Ile Ala Cys Pro Gly Trp Val  
50 55 60  
Gly  
65  
  
<210> 1203  
<211> 379  
<212> PRT  
<213> Homo sapiens  
  
<220>  
<221> SITE  
<222> (132)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<220>  
<221> SITE  
<222> (255)  
<223> Xaa equals any of the naturally occurring L-amino acids  
  
<400> 1203  
Gly Arg Leu Arg Ala Leu Ala Leu Ala Val Ser Ala Pro Gly Leu Thr  
1 5 10 15  
Phe Lys Met Val His Ala Glu Ala Phe Ser Arg Pro Leu Ser Arg Asn  
20 25 30  
Glu Val Val Gly Leu Ile Phe Arg Leu Thr Ile Phe Gly Ala Val Thr  
35 40 45  
Tyr Phe Thr Ile Lys Trp Met Val Asp Ala Ile Asp Pro Thr Arg Lys  
50 55 60  
Gln Lys Val Glu Ala Gln Lys Gln Ala Glu Lys Leu Met Lys Gln Ile  
65 70 75 80  
Gly Val Lys Asn Val Lys Leu Ser Glu Tyr Glu Met Ser Ile Ala Ala  
85 90 95  
His Leu Val Asp Pro Leu Asn Met His Val Thr Trp Ser Asp Ile Ala  
100 105 110  
Gly Leu Asp Asp Val Ile Thr Asp Leu Lys Asp Thr Val Ile Leu Pro  
115 120 125  
Ile Lys Lys Xaa His Leu Phe Glu Asn Ser Arg Leu Leu Gln Pro Pro

130 135 140

Lys Gly Val Leu Leu Tyr Gly Pro Pro Gly Cys Gly Lys Thr Leu Ile  
145 150 155 160

Ala Lys Ala Thr Ala Lys Glu Ala Gly Cys Arg Phe Ile Asn Leu Gln  
165 170 175

Pro Ser Thr Leu Thr Asp Lys Trp Tyr Gly Glu Ser Gln Lys Leu Ala  
180 185 190

Ala Ala Val Phe Ser Leu Ala Ile Lys Leu Gln Pro Ser Ile Ile Phe  
195 200 205

Ile Asp Glu Ile Asp Ser Phe Leu Arg Asn Arg Ser Ser Ser Asp His  
210 215 220

Glu Ala Thr Ala Met Met Lys Ala Gln Phe Met Ser Leu Trp Asp Gly  
225 230 235 240

Leu Asp Thr Asp His Ser Cys Gln Val Ile Val Met Gly Ala Xaa Asn  
245 250 255

Arg Pro Gln Asp Leu Asp Ser Ala Ile Met Arg Arg Met Pro Thr Arg  
260 265 270

Phe His Ile Asn Gln Pro Ala Leu Lys Gln Arg Glu Ala Ile Leu Lys  
275 280 285

L u Ile Leu Lys Asn Glu Asn Val Asp Arg His Val Asp Leu Leu Glu  
290 295 300

Val Ala Gln Glu Thr Asp Gly Phe Ser Gly Ser Asp Leu Lys Glu Met  
305 310 315 320

Cys Arg Asp Ala Ala Leu Leu Cys Val Arg Glu Tyr Val Asn Ser Thr  
325 330 335

Ser Glu Glu Ser His Asp Glu Asp Glu Ile Arg Pro Val Gln Gln Gln  
340 345 350

Asp Leu His Arg Ala Ile Glu Lys Met Lys Lys Ser Lys Asp Ala Ala  
355 360 365

Phe Gln Asn Val Leu Thr His Val Cys Leu Asp  
370 375

&lt;210&gt; 1204

&lt;211&gt; 77

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1204

Leu Ser Xaa Pro Gly Ala Trp Phe Tyr Val Pro Val Ala Met Phe Pro  
1 5 10 15

Val Ser Ser Gly Cys Phe Gln Glu Gln Gln Glu Thr Asn Lys Ser Leu  
20 25 30

Thr Leu Leu Arg Cys Ser Gln Arg Asp Thr Ser Pro Leu Met Asp Gly  
35 40 45

Gln Thr Trp Ala Gly Ser Val Ser Leu Asn His Pro Pro Leu Pro Gln  
50 55 60

Leu Pro Thr Thr Asp Thr Ser Asp Asp Thr Pro Gly Lys  
65 70 75

<210> 1205

<211> 305

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (222)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (223)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (227)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (235)

<223> Xaa equals any of the naturally occurring L-amino acids



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (239)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (273)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (277)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (284)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1205

Phe Thr Ser Val Ser Cys Thr Ser Thr Ser Ser Phe Ser Ser Asn Ala  
1 5 10 15

Ala Gln Arg Phe Phe Leu Leu His Gly Thr Lys Cys Asn Tyr Ser Pro  
20 25 30

Gly Ser Pro Val Tyr Phe Cys Tyr Glu Ser Ser Tyr Phe Asn Thr Thr  
35 40 45

Ser Arg Pro Thr Ser Cys Ser Ala Val Ser Ser Ala Val Asn Ile Met  
50 55 60

Asn Gly Ser Gln Met His Ile Asn Pro Ala Asn Lys Ser Leu Pro Pro  
65 70 75 80

Thr Phe Gly Pro Ala Thr Leu Phe Asn His Phe Ser Ser Leu Phe Asp  
85 90 95

Ser Ser Gln Val Pro Ala Asn Gln Gly Trp Gly Asp Gly Pro Leu Ser  
100 105 110

Ser Arg Val Ala Thr Asp Ala Ser Phe Thr Val Gln Ser Ala Phe Leu  
115 120 125

Gly Asn Ser Val Leu Gly His Leu Glu Asn Met His Pro Asp Asn Ser  
130 135 140

Lys Ala Pro Gly Phe Arg Pro Pro Ser Gln Arg Val Ser Thr Ser Pro  
145 150 155 160

Val Gly Leu Pro Ser Ile Asp Pro Ser Gly Ser Ser Pro Ser Ser Ser  
165 170 175

Ser Ala Pro Leu Ala Ser Phe Ser Gly Ile Pro Gly Thr Arg Val Phe  
180 185 190

Leu Gln Gly Pro Ala Pro Val Gly Thr Pro Ser Phe Asn Arg Gln His  
195 200 205

Phe Ser Pro His Pro Trp Thr Ser Ala Ser Asn Ser Cys Xaa Xaa Pro  
210 215 220

Ile Pro Xaa Val Ser Ser Gly Ser Ser Ser Xaa Leu Ser Ala Xaa Ser  
225 230 235 240

Cys Pro Thr Asn Val Gly Ala Asn Gln Lys Gly Val Ser Ala Ser Gln  
245 250 255

Gly Phe Gly Lys Val Thr Phe Pro Gln Leu Gly Asn Arg Arg Arg Thr  
260 265 270

Xaa Ala Arg Ile Xaa Gly Lys Gly Gly Gly Phe Xaa Trp His Lys Ala  
275 280 285

Pro Gly Gly Asn Gln Phe Phe Cys Ser Val Ser Leu Trp Asp Lys Val  
290 295 300

Gly  
305

<210> 1206

<211> 61

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (52)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (56)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1206

Arg Glu His Ser Ala Phe Asp Leu Trp Glu Ile Ser Ser Trp Xaa Pro  
1 5 10 15

Trp Cys Cys Thr Asp His Gln Glu Glu Leu Lys Ser Ser Gly Asn Leu  
20 25 30

Xaa Lys Ile Lys Ser Pro Pro Ala Arg Xaa Leu Ser Lys Ile Thr Gly  
35 40 45

Arg Leu Leu Xaa Gln His Val Xaa Glu Cys Ala Ser Gly  
50 55 60

&lt;210&gt; 1207

&lt;211&gt; 177

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1207

Asn Ser Ala Gln Gly Met Ala Gly Ser Pro Glu Leu Val Val Leu Asp  
1 5 10 15

Pro Pro Trp Asp Lys Glu Leu Ala Ala Gly Thr Glu Ser Gln Ala Leu  
20 25 30

Val Ser Ala Thr Pro Arg Glu Asp Phe Arg Val Arg Cys Thr Ala Lys  
35 40 45

Arg Ala Val Thr Glu Met Leu Gln Leu Cys Gly Arg Phe Val Gln Lys  
50 55 60

Leu Gly Asp Ala Leu Pro Glu Glu Ile Arg Glu Pro Ala Leu Arg Asp  
65 70 75 80

Ala Gln Trp Thr Phe Glu Ser Ala Val Gln Glu Asn Ile Ser Ile Asn  
85 90 95

Gly Gln Ala Trp Gln Glu Ala Ser Asp Asn Cys Phe Met Asp Ser Asp

100 105 110  
Ile Lys Val Leu Glu Asp Gln Phe Asp Glu Ile Ile Val Asp Ile Ala  
115 120 125  
Thr Lys Arg Lys Gln Tyr Pro Arg Lys Ile Leu Glu Cys Val Ile Lys  
130 135 140  
Thr Ile Lys Ala Lys Gln Glu Ile Leu Lys Gln Tyr His Pro Val Val  
145 150 155 160  
His Pro Leu Asp Leu Lys Tyr Asp Pro Asp Pro Val Leu Ala Cys Ile  
165 170 175

Asn

&lt;210&gt; 1208

&lt;211&gt; 288

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (277)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1208

Pro His Arg Val Asp Thr Arg Arg Arg Asp Pro Val Pro Arg Ser Arg  
1 5 10 15  
Ala Leu Ser His Gly Thr Gly Arg Val Gly Ala Ala Ala Gly Glu Ser  
20 25 30  
Ser Arg Ala Pro Arg Cys Trp Ser Gly Ser Arg Pro Arg Ala Pro Ala  
35 40 45  
Asp Pro Pro Arg His Arg Pro Leu Leu Cys Leu Ser Arg Arg Gly Ser  
50 55 60  
Pro Pro His His Leu Gly Cys Leu Leu Gly Glu Ser Phe Met Gln Leu  
65 70 75 80  
Gln Gln Arg Leu Leu Arg Glu Lys Glu Ala Lys Ile Arg Lys Ala Leu  
85 90 95  
Asp Arg Leu Arg Lys Lys Arg His Leu Leu Arg Arg Gln Arg Thr Arg  
100 105 110

Arg Glu Phe Pro Val Ile Ser Val Val Gly Tyr Thr Asn Cys Gly Lys  
115 120 125

Thr Thr Leu Ile Lys Ala Leu Thr Gly Asp Ala Ala Ile Gln Pro Arg  
130 135 140

Asp Gln Leu Phe Ala Thr Leu Asp Val Thr Ala His Ala Gly Thr Leu  
145 150 155 160

Pro Ser Arg Met Thr Val Leu Tyr Val Asp Thr Ile Gly Phe Leu Ser  
165 170 175

Gln Leu Pro His Gly Leu Ile Glu Ser Phe Ser Ala Thr Leu Glu Asp  
180 185 190

Val Ala His Ser Asp Leu Ile Leu His Val Arg Asp Val Ser His Pro  
195 200 205

Glu Ala Glu Leu Gln Lys Cys Ser Val Leu Ser Thr Leu Arg Gly Leu  
210 215 220

Gln Leu Pro Ala Pro Leu Leu Asp Ser Met Val Glu Val His Asn Lys  
225 230 235 240

Val Asp Leu Val Pro Gly Tyr Ser Pro Thr Glu Pro Asn Val Val Pro  
245 250 255

Val Ser Ala Leu Arg Gly His Gly Leu Gln Glu Leu Lys Leu Ser Ser  
260 265 270

Met Arg Arg Phe Xaa Arg Arg Arg Gly Asp Arg Ser Ser Leu Ser Val  
275 280 285

<210> 1209

<211> 327

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (30)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (261)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1209

Asn Ile Leu Gly Gly Gly Lys Trp Phe Leu Arg Gly Ile Leu Leu Ile  
1 5 10 15

Leu Pro Gln Val Tyr Leu Pro Cys Val Leu Gln Thr Lys Xaa Arg Tyr  
20 25 30

Val Gly Tyr Met Tyr Glu Thr Leu Asp Gln Lys Asp Pro Val Phe Asp  
35 40 45

Ala Lys Gly Ile Glu Thr Val Arg Arg Asp Ser Cys Pro Ala Val Ser  
50 55 60

Lys Ile Leu Glu Arg Ser Leu Lys Leu Leu Phe Glu Thr Arg Asp Ile  
65 70 75 80

Ser Leu Ile Lys Gln Tyr Val Gln Arg Gln Cys Met Lys Leu Leu Glu  
85 90 95

Gly Lys Ala Ser Ile Gln Asp Phe Ile Phe Ala Lys Glu Tyr Arg Gly  
100 105 110

Ser Phe Ser Tyr Lys Pro Gly Ala Cys Val Pro Ala Leu Glu Leu Thr  
115 120 125

Arg Lys Met Leu Thr Tyr Asp Arg Arg Ser Glu Pro Gln Val Gly Glu  
130 135 140

Arg Val Pro Tyr Val Ile Ile Tyr Gly Thr Pro Gly Val Pro Leu Ile  
145 150 155 160

Gln Leu Val Arg Arg Pro Val Glu Val Leu Gln Asp Pro Thr Leu Arg  
165 170 175

Leu Asn Ala Thr Tyr Tyr Ile Thr Lys Gln Ile Leu Pro Pro Leu Ala  
180 185 190

Arg Ile Phe Ser Leu Ile Gly Ile Asp Val Phe Ser Trp Tyr His Glu  
195 200 205

Leu Pro Arg Ile His Lys Ala Thr Ser Ser Ser Arg Ser Glu Pro Glu  
210 215 220

Gly Arg Lys Gly Thr Ile Ser Gln Tyr Phe Thr Thr Leu His Cys Pro  
225 230 235 240

Val Cys Asp Asp Leu Thr Gln His Gly Ile Cys Ser Lys Cys Arg Ser  
245 250 255

Gln Pro Gln His Xaa Ala Val Ile Leu Asn Gln Glu Ile Arg Glu Leu  
260 265 270  
Glu Arg Gln Gln Glu Gln Leu Val Lys Ile Cys Lys Asn Cys Thr Gly  
275 280 285  
Cys Phe Asp Arg His Ile Pro Cys Val Ser Leu Asn Cys Pro Val Leu  
290 295 300  
Phe Lys Leu Ser Arg Val Asn Arg Glu Leu Ser Lys Ala Pro Tyr Leu  
305 310 315 320  
Arg Gln Leu Leu Asp Gln Phe  
325

&lt;210&gt; 1210

&lt;211&gt; 676

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (374)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1210

Pro Val Leu Arg Thr His Pro Gly Pro Gln Ser Leu Pro Arg Val Pro  
1 5 10 15  
Gly Val Pro Cys Gly Gly Leu Leu Glu Pro Leu Ser Arg Ala Glu Val  
20 25 30  
Ser Pro Arg Leu Gly Leu Arg Arg Asp Leu Leu Gly Gly Met Ala Pro  
35 40 45  
Pro Gly Ser Ser Thr Val Phe Leu Leu Ala Leu Thr Ile Ile Ala Ser  
50 55 60  
Thr Trp Ala Leu Thr Pro Thr His Tyr Leu Thr Lys His Asp Val Glu  
65 70 75 80  
Arg Leu Lys Ala Ser Leu Asp Arg Pro Phe Thr Asn Leu Glu Ser Ala  
85 90 95  
Phe Tyr Ser Ile Val Gly Leu Ser Ser Leu Gly Ala Gln Val Pro Asp  
100 105 110  
Ala Lys Lys Ala Cys Thr Tyr Ile Arg Ser Asn Leu Asp Pro Ser Asn  
115 120 125

Val Asp Ser Leu Phe Tyr Ala Ala Gln Ala Ser Gln Ala Leu Ser Gly  
130 135 140

Cys Glu Ile Ser Ile Ser Asn Glu Thr Lys Asp Leu Leu Leu Ala Ala  
145 150 155 160

Val Ser Glu Asp Ser Ser Val Thr Gln Ile Tyr His Ala Val Ala Ala  
165 170 175

Leu Ser Gly Phe Gly Leu Pro Leu Ala Ser Gln Glu Ala Leu Ser Ala  
180 185 190

Leu Thr Ala Arg Leu Ser Lys Glu Glu Thr Val Leu Ala Thr Val Gln  
195 200 205

Ala Leu Gln Thr Ala Ser His Leu Ser Gln Gln Ala Asp Leu Arg Ser  
210 215 220

Ile Val Glu Glu Ile Glu Asp Leu Val Ala Arg Leu Asp Glu Leu Gly  
225 230 235 240

Gly Val Tyr Leu Gln Phe Glu Glu Gly Leu Glu Thr Thr Ala Leu Phe  
245 250 255

Val Ala Ala Thr Tyr Lys Leu Met Asp His Val Gly Thr Glu Pro Ser  
260 265 270

Ile Lys Glu Asp Gln Val Ile Gln Leu Met Asn Ala Ile Phe Ser Lys  
275 280 285

Lys Asn Phe Glu Ser Leu Ser Glu Ala Phe Ser Val Ala Ser Ala Ala  
290 295 300

Ala Val Leu Ser His Asn Arg Tyr His Val Pro Val Val Val Val Pro  
305 310 315 320

Glu Gly Ser Ala Ser Asp Thr His Glu Gln Ala Ile Leu Arg Leu Gln  
325 330 335

Val Thr Asn Val Leu Ser Gln Pro Leu Thr Gln Ala Thr Val Lys Leu  
340 345 350

Glu His Ala Lys Ser Val Ala Ser Arg Ala Thr Val Leu Gln Lys Thr  
355 360 365

Ser Phe Thr Pro Val Xaa Asp Val Phe Glu Leu Asn Phe Met Asn Val  
370 375 380

Lys Phe Ser Ser Gly Tyr Tyr Asp Phe Leu Val Glu Val Glu Gly Asp  
385 390 395 400



Asn Arg Tyr Ile Ala Asn Thr Val Glu Leu Arg Val Lys Ile Ser Thr  
405 410 415

Glu Val Gly Ile Thr Asn Val Asp Leu Ser Thr Val Asp Lys Asp Gln  
420 425 430

Ser Ile Ala Pro Lys Thr Thr Arg Val Thr Tyr Pro Ala Lys Ala Lys  
435 440 445

Gly Thr Phe Ile Ala Asp Ser His Gln Asn Phe Ala Leu Phe Phe Gln  
450 455 460

Leu Val Asp Val Asn Thr Gly Ala Glu Leu Thr Pro His Gln Thr Phe  
465 470 475 480

Val Arg Leu His Asn Gln Lys Thr Gly Gln Glu Val Val Phe Val Ala  
485 490 495

Glu Pro Asp Asn Lys Asn Val Tyr Lys Phe Glu Leu Asp Thr Ser Glu  
500 505 510

Arg Lys Ile Glu Phe Asp Ser Ala Ser Gly Thr Tyr Thr Leu Tyr Leu  
515 520 525

Ile Ile Gly Asp Ala Thr Leu Lys Asn Pro Ile Leu Trp Asn Val Ala  
530 535 540

Asp Val Val Ile Lys Phe Pro Glu Glu Glu Ala Pro Ser Thr Val Leu  
545 550 555 560

Ser Gln Asn Leu Phe Thr Pro Lys Gln Glu Ile Gln His Leu Phe Arg  
565 570 575

Glu Pro Glu Lys Arg Pro Pro Thr Val Val Ser Asn Thr Phe Thr Ala  
580 585 590

Leu Ile Leu Ser Pro Leu Leu Leu Leu Phe Ala Leu Trp Ile Arg Ile  
595 600 605

Gly Ala Asn Val Ser Asn Phe Thr Phe Ala Pro Ser Thr Ile Ile Phe  
610 615 620

His Leu Gly His Ala Ala Met Leu Gly Leu Met Tyr Val Tyr Trp Thr  
625 630 635 640

Gln Leu Asn Met Phe Gln Thr Leu Lys Tyr Leu Ala Ile Leu Gly Ser  
645 650 655

Val Thr Phe Leu Ala Gly Asn Arg Met Leu Ala Gln Gln Ala Val Lys  
660 665 670

Arg Thr Ala His  
675

<210> 1211  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 1211  
His Val Cys Leu Thr Leu Met Glu Gly Ile Asn Pro Gln Asn Phe Leu  
1 5 10 15  
Pro Arg Glu Leu Gly Asn Cys Pro Arg Asn Lys Pro Cys Thr Val Glu  
20 25 30  
Trp Thr Trp Ile Ser Asn Asn Leu Leu Leu Cys Arg Ile Cys Ser Leu  
35 40 45  
Val Ile Val Trp Cys Val Ile Leu  
50 55

<210> 1212  
<211> 61  
<212> PRT  
<213> Homo sapiens

<400> 1212  
Ser Tyr Pro Ala Ala Lys Ser Ser Val Ile Phe Gly Ala Leu Arg Ile  
1 5 10 15  
Thr Leu Val Ser Ala His Phe Pro Phe Cys Leu Pro Tyr Lys Ala Gln  
20 25 30  
Asn Arg Val Gly Lys Lys Tyr Glu Thr Ser Thr Val Ser Thr Phe Leu  
35 40 45  
Glu Val Trp Tyr Leu Val Ser Arg Leu Arg Pro Gln Asp  
50 55 60

<210> 1213  
<211> 260  
<212> PRT  
<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (205)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1213

Cys Pro Pro Glu Cys Arg Trp Cys Val Ala Arg Leu Ala Leu Arg Glu  
 1 5 10 15

Ser Trp Gly Leu Leu Pro Glu Arg Tyr Gly Tyr Val Asp Arg Asn Arg  
 20 25 30

Ile Phe Gly Cys Asp Pro Pro Tyr Tyr Ala Val Leu Glu Gly Glu Gln  
 35 40 45

Phe Thr Ser Gly Val Ser Thr Leu Gln Glu Glu Thr Thr Val Ser Leu  
 50 55 60

Asn Thr Val Asp Ser Ile Glu Ser Phe Val Ala Asp Ile Asn Ser Gly  
 65 70 75 80

His Trp Asp Thr Val Leu Gln Ala Ile Gln Ser Leu Lys Leu Pro Asp  
 85 90 95

Lys Thr Leu Ile Asp Leu Tyr Glu Gln Val Val Leu Glu Leu Ile Glu  
 100 105 110

Leu Arg Glu Leu Gly Ala Ala Arg Ser Leu Leu Arg Gln Thr Asp Pro  
 115 120 125

Met Ile Met Leu Lys Gln Thr Gln Pro Glu Arg Tyr Ile His Leu Glu  
 130 135 140

Asn Leu Leu Ala Arg Ser Tyr Phe Asp Pro Arg Glu Ala Tyr Pro Asp  
 145 150 155 160

Gly Ser Ser Lys Glu Lys Arg Arg Ala Ala Ile Ala Gln Ala Leu Ala  
 165 170 175

Gly Glu Val Ser Val Val Pro Pro Ser Arg Leu Met Ala Leu Leu Gly  
 180 185 190

Gln Ala Leu Lys Trp Gln Gln His Gln Gly Leu Leu Xaa Pro Gly Met  
 195 200 205

Thr Ile Asp Leu Phe Arg Gly Lys Ala Ala Val Lys Asp Val Glu Glu  
 210 215 220

Glu Lys Phe Pro Thr Gln Leu Ser Arg His Ile Lys Phe Gly Gln Lys  
 225 230 235 240

Ser His Val Glu Cys Ala Arg Phe Ser Pro Asp Gly Pro Val Phe Gly  
245 250 255

His Trp Val Cys  
260

<210> 1214  
<211> 95  
<212> PRT  
<213> Homo sapiens

<400> 1214  
Lys Gln Asn Ile Pro Tyr Val Ser Phe Ser Ile Gly Gln Lys His Phe  
1 5 10 15

Asp Thr Met Phe Val Lys His Leu Trp Arg Gly Ala Leu Leu Asn Ala  
20 25 30

Ala Ser Ala Val Asn Pro Gly Gly Lys Gly Ser Ala Ser Ser Gln Glu  
35 40 45

Pro Ser Pro Ser Ile Asn Arg Glu Leu Lys Gln Ala Phe Phe Phe Ser  
50 55 60

Tyr Arg Lys Ala Ala Ile Val Gln Gly His Ile Met Gly Leu Phe Ala  
65 70 75 80

Leu Ile Gly Phe Gln Met Cys Met Ala Lys Arg Glu Met Trp Ala  
85 90 95

<210> 1215  
<211> 365  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (1)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1215  
Xaa His Gly Ile Gly Val Thr Ala Thr Asn Phe Thr Thr His Asn Ile  
1 5 10 15

Pro Gln Thr Phe Thr Thr Ala Ile Arg Cys Thr Lys Cys Gly Lys Gly  
20 25 30

Val Asp Asn Met Pro Glu Leu His Lys His Ile Leu Ala Cys Ala Ser  
35 40 45

Ala Ser Asp Lys Lys Arg Tyr Thr Pro Lys Lys Asn Pro Val Pro Leu  
50 55 60

Lys Gln Thr Val Gln Pro Lys Asn Gly Val Val Val Leu Asp Asn Ser  
65 70 75 80

Gly Lys Asn Ala Phe Arg Arg Met Gly Gln Pro Lys Arg Leu Asn Phe  
85 90 95

Ser Val Glu Leu Ser Lys Met Ser Ser Asn Lys Leu Lys Leu Asn Ala  
100 105 110

Leu Lys Lys Lys Asn Gln Leu Val Gln Lys Ala Ile Leu Gln Lys Asn  
115 120 125

Lys Ser Ala Lys Gln Lys Ala Asp Leu Lys Asn Ala Cys Glu Ser Ser  
130 135 140

Ser His Ile Cys Pro Tyr Cys Asn Arg Glu Phe Thr Tyr Ile Gly Ser  
145 150 155 160

Leu Asn Lys His Ala Ala Phe Ser Cys Pro Lys Lys Pro Leu Ser Pro  
165 170 175

Pro Lys Lys Lys Val Ser His Ser Ser Lys Lys Gly Gly His Ser Ser  
180 185 190

Pro Ala Ser Ser Asp Lys Asn Ser Asn Ser Asn His Arg Arg Arg Thr  
195 200 205

Ala Asp Ala Glu Ile Lys Met Gln Ser Met Gln Thr Pro Leu Gly Lys  
210 215 220

Thr Arg Ala Arg Ser Ser Gly Pro Thr Gln Val Pro Leu Pro Ser Ser  
225 230 235 240

Ser Phe Arg Ser Lys Gln Asn Val Lys Phe Ala Ala Ser Val Lys Ser  
245 250 255

Lys Lys Pro Ser Ser Ser Ser Leu Arg Asn Ser Ser Pro Ile Arg Met  
260 265 270

Ala Lys Ile Thr His Val Glu Gly Lys Lys Pro Lys Ala Val Ala Lys  
275 280 285

Asn His Ser Ala Gln Leu Ser Ser Lys Thr Ser Arg Ser Leu His Val  
290 295 300

Arg Val Gln Lys Ser Lys Ala Val Leu Gln Ser Lys Ser Thr Leu Ala  
305 310 315 320

Ser Lys Lys Arg Thr Asp Arg Phe Asn Ile Lys Ser Arg Glu Arg Ser  
325 330 335

Gly Gly Pro Val Thr Arg Ser Leu Gln Leu Ala Ala Ala Ala Asp Leu  
340 345 350

Ser Glu Asn Lys Arg Glu Asp Gly Ser Ala Ser Arg Ser  
355 360 365

<210> 1216

<211> 558

<212> PRT

<213> Homo sapiens

<400> 1216

Ala His Ala Ser Ala His Ala Ala Thr Pro Arg Arg Leu Trp Ala Leu  
1 5 10 15

Ser Ile Val Ser Phe Ser Ser Ala Gly Ala Ala Met Ala Ala Val Lys  
20 25 30

Thr Leu Asn Pro Lys Ala Glu Val Ala Arg Ala Gln Ala Ala Leu Ala  
35 40 45

Val Asn Ile Ser Ala Ala Arg Gly Leu Gln Asp Val Leu Arg Thr Asn  
50 55 60

Leu Gly Pro Lys Gly Thr Met Lys Met Leu Val Ser Gly Ala Gly Asp  
65 70 75 80

Ile Lys Leu Thr Lys Asp Gly Asn Val Leu Leu His Glu Met Gln Ile  
85 90 95

Gln His Pro Thr Ala Ser Leu Ile Ala Lys Val Ala Thr Ala Gln Asp  
100 105 110

Asp Ile Thr Gly Asp Gly Thr Thr Ser Asn Val Leu Ile Ile Gly Glu  
115 120 125

Leu Leu Lys Gln Ala Asp Leu Tyr Ile Ser Glu Gly Leu His Pro Arg  
130 135 140

Ile Ile Thr Glu Gly Phe Glu Ala Ala Lys Glu Lys Ala Leu Gln Phe  
145 150 155 160

Leu Glu Glu Val Lys Val Ser Arg Glu Met Asp Arg Glu Thr Leu Ile

165	170	175
Asp Val Ala Arg Thr Ser Leu Arg Thr Lys Val His Ala Glu Leu Ala		
180	185	190
Asp Val Leu Thr Glu Ala Val Val Asp Ser Ile Leu Ala Ile Lys Lys		
195	200	205
Gln Asp Glu Pro Ile Asp Leu Phe Met Ile Glu Ile Met Glu Met Lys		
210	215	220
His Lys Ser Glu Thr Asp Thr Ser Leu Ile Arg Gly Leu Val Leu Asp		
225	230	235
His Gly Ala Arg His Pro Asp Met Lys Lys Arg Val Glu Asp Ala Tyr		
245	250	255
Ile Leu Thr Cys Asn Val Ser Leu Glu Tyr Glu Lys Thr Glu Val Asn		
260	265	270
Ser Gly Phe Phe Tyr Lys Ser Ala Glu Glu Arg Glu Lys Leu Val Lys		
275	280	285
Ala Glu Arg Lys Phe Ile Glu Asp Arg Val Lys Lys Ile Ile Glu Leu		
290	295	300
Lys Arg Lys Val Cys Gly Asp Ser Asp Lys Gly Phe Val Val Ile Asn		
305	310	315
Gln Lys Gly Ile Asp Pro Phe Ser Leu Asp Ala Leu Ser Lys Glu Gly		
325	330	335
Ile Val Ala Leu Arg Arg Ala Lys Arg Arg Asn Met Glu Arg Leu Thr		
340	345	350
Leu Ala Cys Gly Gly Val Ala Leu Asn Ser Phe Asp Asp Leu Ser Pro		
355	360	365
Asp Cys Leu Gly His Ala Gly Leu Val Tyr Glu Tyr Thr Leu Gly Glu		
370	375	380
Glu Lys Phe Thr Phe Ile Glu Lys Cys Asn Asn Pro Arg Ser Val Thr		
385	390	395
Leu Leu Ile Lys Gly Pro Asn Lys His Thr Leu Thr Gln Ile Lys Asp		
405	410	415
Ala Val Arg Asp Gly Leu Arg Ala Val Lys Asn Ala Ile Asp Asp Gly		
420	425	430
Cys Val Val Pro Gly Ala Gly Ala Val Glu Val Ala Met Ala Glu Ala		

435                      440                      445

Leu Ile Lys His Lys Pro Ser Val Lys Gly Arg Ala Gln Leu Gly Val  
450                      455                      460

Gln Ala Phe Ala Asp Ala Leu Leu Ile Ile Pro Lys Val Leu Ala Gln  
465                      470                      475                      480

Asn Ser Gly Phe Asp Leu Gln Glu Thr Leu Val Lys Ile Gln Ala Glu  
485                      490                      495

His Ser Glu Ser Gly Gln Leu Val Gly Val Asp Leu Asn Thr Gly Glu  
500                      505                      510

Pro Met Val Ala Ala Glu Val Gly Val Trp Asp Asn Tyr Cys Val Lys  
515                      520                      525

Lys Gln Leu Leu His Ser Cys Thr Val Ile Ala Thr Asn Ile Leu Leu  
530                      535                      540

Val Asp Glu Ile Met Arg Ala Gly Met Ser Ser Leu Lys Gly  
545                      550                      555

<210> 1217

<211> 226

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (98)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (145)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (146)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (185)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (192)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (199)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (206)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (212)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (218)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1217

Leu Lys Val Leu Trp Cys Phe Leu Ile His Val Gln Gly Ser Ile Arg  
1 5 10 15

Gln Phe Ala Ala Cys Leu Val Leu Thr Asp Phe Gly Ile Ala Val Phe  
20 25 30

Glu Ile Pro His Gln Glu Ser Arg Gly Ser Ser Gln His Ile Leu Ser  
35 40 45

Ser Leu Arg Phe Val Phe Cys Phe Pro His Gly Asp Leu Thr Glu Phe  
50 55 60

Gly Phe Leu Met Pro Glu Leu Cys Leu Val Leu Lys Val Arg His Ser  
65 70 75 80

Glu Asn Thr Leu Phe Ile Ile Ser Asp Ala Ala Asn Leu His Glu Phe  
85 90 95

His Xaa Asp Leu Arg Ser Cys Phe Ala Pro Gln His Met Ala Met Leu  
100 105 110

Cys Ser Pro Ile Leu Tyr Gly Ser His Thr Ser Leu Gln Glu Phe Leu  
115 120 125

Arg Gln Leu Leu Thr Phe Tyr Lys Val Ala Gly Gly Cys Gln Glu Arg  
130 135 140

Xaa Xaa Gly Cys Phe Pro Val Tyr Leu Val Tyr Ser Asp Lys Arg Met  
145 150 155 160

Val Gln Thr Ala Ala Gly Asp Tyr Ser Gly Asn Ile Glu Trp Pro Ala  
165 170 175

Ala His Ser Val Gln Pro Cys Gly Xaa Pro Ala Ala Arg Pro Leu Xaa  
180 185 190

Pro Ser Ser Pro Pro Pro Xaa Pro Thr Gly Cys Cys Ser Xaa Pro Ser  
195 200 205

Thr Gln Ser Xaa Gln Ser Arg Leu Gln Xaa His Ala Gln Thr Val Glu  
210 215 220

Pro Lys  
225

<210> 1218

<211> 255

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1218

Cys Xaa Leu Pro Gly Cys Glu Ala His Ile Ile Pro Phe Ile Leu Asp  
1 5 10 15

Glu Ile Gly Ala Asp Ile Glu Asp Arg His Ile Val Val Ser Cys Ala  
20 25 30

Ala Gly Val Thr Ile Ser Ser Ile Glu Lys Lys Leu Ser Ala Phe Arg  
35 40 45

Pro Ala Pro Arg Val Ile Arg Cys Met Thr Asn Thr Pro Val Val Val  
50 55 60

Arg Glu Gly Ala Thr Val Tyr Ala Thr Gly Thr His Ala Gln Val Glu  
65 70 75 80

Asp Gly Arg Leu Met Glu Gln Leu Leu Ser Ser Val Gly Phe Cys Thr  
85 90 95

Glu Val Glu Glu Asp Leu Ile Asp Ala Val Thr Gly Leu Ser Gly Ser

100

105

110

Gly Pro Ala Tyr Ala Phe Thr Ala Leu Asp Ala Leu Ala Asp Gly Gly  
115 120 125

Val Lys Met Gly Leu Pro Arg Arg Leu Ala Val Arg Leu Gly Ala Gln  
130 135 140

Ala Leu Leu Gly Ala Ala Lys Met Leu Leu His Ser Glu Gln His Pro  
145 150 155 160

Gly Gln Leu Lys Asp Asn Val Ser Ser Pro Gly Gly Ala Thr Ile His  
165 170 175

Ala Leu His Val Leu Glu Ser Gly Gly Phe Arg Ser Leu Leu Ile Asn  
180 185 190

Ala Val Glu Ala Ser Cys Ile Arg Thr Arg Glu Leu Gln Ser Met Ala  
195 200 205

Asp Gln Glu Gln Val Ser Pro Ala Ala Ile Lys Lys Thr Ile Leu Asp  
210 215 220

Lys Val Lys Leu Asp Ser Pro Ala Gly Thr Ala Leu Ser Pro Ser Gly  
225 230 235 240

His Thr Lys Leu Leu Pro Arg Ser Leu Ala Pro Ala Gly Lys Asp  
245 250 255

&lt;210&gt; 1219

&lt;211&gt; 590

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (17)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (116)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (127)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (131)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (134)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (158)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (161)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (213)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (216)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1219

Ala Gln Val Arg Ala Pro Pro Trp Leu Cys Cys Pro Arg Ala Trp Thr  
1 5 10 15

Xaa Cys Pro Pro Pro Ala Cys Arg Arg Ala Gly Arg Pro Thr Arg Pro  
20 25 30

Ser Cys Ser Ala Val Thr Ala Pro Gly Ser Gly Gly Leu Val Ala Gly  
35 40 45

Gly Pro Glu Ala Phe Ala Ala Phe Leu Arg Arg Glu Arg Leu Ala Arg  
50 55 60

Phe Leu Asn Pro Asp Glu Val His Ala Ile Leu Arg Ala Ala Glu Arg  
65 70 75 80

Pro Gly Glu Glu Gly Ala Ala Ala Ala Ala Ala Arg Thr Arg Ser  
85 90 95

Ala Pro Arg Thr Thr Ala Leu Arg Ala Leu Leu Pro Arg Ala Val Gly  
100 105 110

Pro Gly Ala Xaa Ala Val Gly Ala Trp Leu Ala Arg Leu Leu Xaa Gly  
115 120 125

Arg Leu Xaa Arg Arg Xaa Ala Cys Arg Asp Ala Leu Pro Ala Pro Arg  
130 135 140

Arg Trp Arg Arg Trp Pro Leu Arg Leu Gln Gly Arg Ser Xaa Pro His  
145 150 155 160

Xaa Arg Ser Ala Arg Glu Val Ile Ala Val Val Met Asp Val Phe Thr  
165 170 175

Asp Ile Asp Ile Phe Arg Asp Leu Gln Glu Ile Cys Arg Lys Gln Gly  
180 185 190

Val Ala Val Tyr Ile Leu Leu Asp Gln Ala Leu Leu Ser Gln Phe Leu  
195 200 205

Asp Met Cys Met Xaa Leu Lys Xaa His Pro Glu Gln Glu Lys Leu Met  
210 215 220

Thr Val Arg Thr Ile Thr Gly Asn Ile Tyr Tyr Ala Arg Ser Gly Thr  
225 230 235 240

Lys Ile Ile Gly Lys Val His Glu Lys Phe Thr Leu Ile Asp Gly Ile  
245 250 255

Arg Val Ala Thr Gly Ser Tyr Ser Phe Thr Trp Thr Asp Gly Lys Leu  
260 265 270

Asn Ser Ser Asn Leu Val Ile Leu Ser Gly Gln Val Val Glu His Phe  
275 280 285

Asp Leu Glu Phe Arg Ile Leu Tyr Ala Gln Ser Lys Pro Ile Ser Pro  
290 295 300

Lys Leu Leu Ser His Phe Gln Ser Ser Asn Lys Phe Asp His Leu Thr  
305 310 315 320

Asn Arg Lys Pro Gln Ser Lys Glu Leu Thr Leu Gly Asn Leu Leu Arg  
325 330 335

Met Arg Leu Ala Arg Leu Ser Ser Thr Pro Arg Lys Ala Asp Leu Asp  
340 345 350

Pro Glu Met Pro Ala Glu Gly Lys Ala Glu Arg Lys Pro His Asp Cys  
355 360 365

Glu Ser Ser Thr Val Ser Glu Glu Asp Tyr Phe Ser Ser His Arg Asp  
370 375 380

Glu Leu Gln Ser Arg Lys Ala Ile Asp Ala Ala Thr Gln Thr Glu Pro  
 385 390 395 400

Gly Glu Glu Met Pro Gly Leu Ser Val Ser Glu Val Gly Thr Gln Thr  
 405 410 415

Ser Ile Thr Thr Ala Cys Ala Gly Thr Gln Thr Ala Val Ile Thr Arg  
 420 425 430

Ile Ala Ser Ser Gln Thr Thr Ile Trp Ser Arg Ser Thr Thr Thr Gln  
 435 440 445

Thr Asp Met Asp Glu Asn Ile Leu Phe Pro Arg Gly Thr Gln Ser Thr  
 450 455 460

Glu Gly Ser Pro Val Ser Lys Met Ser Val Ser Arg Ser Ser Ser Leu  
 465 470 475 480

Lys Ser Ser Ser Ser Val Ser Ser Gln Gly Ser Val Ala Ser Ser Thr  
 485 490 495

Gly Ser Pro Ala Ser Ile Arg Thr Thr Asp Phe His Asn Pro Gly Tyr  
 500 505 510

Pro Lys Tyr Leu Gly Thr Pro His Leu Glu Leu Tyr Leu Ser Asp Ser  
 515 520 525

Leu Arg Asn Leu Asn Lys Glu Arg Gln Phe His Phe Ala Gly Ile Arg  
 530 535 540

Ser Arg Leu Asn His Met Leu Ala Met Leu Ser Arg Arg Thr Leu Phe  
 545 550 555 560

Thr Glu Asn His Leu Gly Leu His Ser Gly Asn Phe Ser Arg Val Asn  
 565 570 575

Leu Leu Ala Val Arg Asp Val Ala Leu Tyr Pro Ser Tyr Gln  
 580 585 590

<210> 1220

<211> 451

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1220

Val Glu Ile Ser Gly Pro Arg Pro Val Asp Trp Glu Val Arg Pro Pro  
1 5 10 15

Leu Gln Arg Leu Gly Leu Cys Phe Gly Ser Cys Arg Xaa Gln Gln Ser  
20 25 30

Leu Pro Gly Arg Gly Ser Ala Asn Leu Leu Pro Ser Val Arg Ser Glu  
35 40 45

Ser Ala Val Leu Ser Asp Cys Val Gly Gly Phe Pro Gly Arg Ser Ser  
50 55 60

Val Arg Ala Trp Ile Ala Gly Pro Arg Cys Thr Pro Ala Ser Pro Thr  
65 70 75 80

Arg Val Leu Ser Leu Ser Trp Arg Leu Phe Asn Ser Ala Ser Leu Leu  
85 90 95

Leu Leu Ala Thr Ser Thr Ser Gly Ser Glu Cys Arg Phe Pro Arg Ser  
100 105 110

Pro Arg Ala Arg Glu Arg Gly Ile Pro Asp Cys Glu Arg Leu Leu Val  
115 120 125

Arg Arg Ser Cys Trp Arg Ser Gly Asp Pro Arg Pro Ala Gly Pro Ala  
130 135 140

Gly His Ala Ala Gly Ala Phe Ser Thr Pro Gln Tyr Leu Gly Gly Thr  
145 150 155 160

Ala Met Val Leu Leu His Val Lys Arg Gly Asp Glu Ser Gln Phe Leu  
165 170 175

Leu Gln Ala Pro Gly Ser Thr Glu Leu Glu Glu Leu Thr Val Gln Val  
180 185 190

Ala Arg Val Tyr Asn Gly Arg Leu Lys Val Gln Arg Leu Cys Ser Glu  
195 200 205

Met Glu Glu Leu Ala Glu His Gly Ile Phe Leu Pro Pro Asn Met Gln  
210 215 220

Gly Leu Thr Asp Asp Gln Ile Glu Glu Leu Lys Leu Lys Asp Glu Trp  
225 230 235 240

Gly Glu Lys Cys Val Pro Ser Gly Gly Ala Val Phe Lys Lys Asp Asp  
245 250 255

Ile Gly Arg Arg Asn Gly Gln Ala Pro Asn Glu Lys Met Lys Gln Val

260	265	270
Leu Lys Lys Thr Ile Glu Glu Ala Lys Ala Ile Ile Ser Lys Lys Gln		
275	280	285
Val Glu Ala Gly Val Cys Val Thr Met Glu Met Val Lys Asp Ala Leu		
290	295	300
Asp Gln Leu Arg Gly Ala Val Met Ile Val Tyr Pro Met Gly Leu Pro		
305	310	315
Pro Tyr Asp Pro Ile Arg Met Glu Phe Glu Asn Lys Glu Asp Leu Ser		
325	330	335
Gly Thr Gln Ala Gly Leu Asn Val Ile Lys Glu Ala Glu Ala Gln Leu		
340	345	350
Trp Trp Ala Ala Lys Glu Leu Arg Arg Thr Lys Lys Leu Ser Asp Tyr		
355	360	365
Val Gly Lys Asn Glu Lys Thr Lys Ile Ile Ala Lys Ile Gln Gln Arg		
370	375	380
Gly Gln Gly Ala Pro Ala Arg Glu Pro Ile Ile Ser Ser Glu Glu Gln		
385	390	395
Lys Gln Leu Met Leu Tyr Tyr His Arg Arg Gln Glu Glu Leu Lys Arg		
405	410	415
Leu Glu Glu Asn Asp Asp Asp Ala Tyr Leu Asn Ser Pro Trp Ala Asp		
420	425	430
Asn Thr Ala Leu Lys Arg His Phe His Gly Val Lys Asp Ile Lys Trp		
435	440	445
Arg Pro Arg		
450		

&lt;210&gt; 1221

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (14)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1221



Ala Glu Pro Gly Leu Ser Asn Pro Trp Gly Ala Gly Ser Xaa Ala Leu  
1 5 10 15  
Gly His Thr Trp Leu Pro Ala Pro Met Val Pro Val Pro Trp Asn Gly  
20 25 30  
Asp Gly Gln Phe Trp Gly Gln Met Trp Cys Ser Gly Ile Gln Ser His  
35 40 45  
Phe Leu Pro Gly His Glu Leu Ser Gln Arg Pro Leu Gln Pro His Ser  
50 55 60  
Ala Pro Thr Tyr Leu Gly Thr Pro Ala Gly Ala Arg Glu Ala Pro Gly  
65 70 75 80  
Gly Leu Gly Pro Lys  
85

&lt;210&gt; 1222

&lt;211&gt; 120

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1222

Gly Leu Pro Glu His Val Val Pro Arg Leu Leu Gln Gly Val Glu Val  
1 5 10 15  
Ser Trp Gly Trp Pro Arg Pro Arg Leu Leu Ser Gln Gly Glu Ala Ala  
20 25 30  
Thr Asp Ser His Pro Thr Ala Leu Leu Lys Arg Met Phe Ala Val Val  
35 40 45  
Gly Gly Val Pro Val Pro Thr Leu Pro Gly Thr Arg Pro Trp Gly Thr  
50 55 60  
Leu Ala Gln Gly Cys Leu Gly Pro Ala Ser Cys Ala Ala Lys Val Gly  
65 70 75 80  
Gly Pro His Pro Lys Thr Asn Pro Gly Pro Arg Pro Leu Glu Ala Arg  
85 90 95  
Ala Ser Leu His Gly Leu Arg Gly Val Gly Ile Ser Pro Gln Ser Asp  
100 105 110  
Leu Ala Ser Glu Leu Phe Ser Arg  
115 120

<210> 1223  
<211> 228  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (164)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (204)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (212)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (215)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1223  
Ala Glu Thr His Phe Ser Leu Pro Glu Phe Glu Pro Pro Phe Pro Ser  
1 5 10 15  
Ser Arg Ser Pro Thr Pro Gly Ala Met Asp Pro Phe Thr Glu Lys Leu  
20 25 30  
Leu Glu Arg Thr Arg Ala Arg Arg Glu Asn Leu Gln Arg Lys Met Ala  
35 40 45  
Glu Arg Pro Thr Ala Ala Pro Arg Ser Met Thr His Ala Lys Arg Ala  
50 55 60  
Arg Gln Pro Leu Ser Glu Ala Ser Asn Gln Gln Pro Leu Ser Gly Gly  
65 70 75 80  
Glu Glu Lys Ser Cys Thr Lys Pro Ser Pro Ser Lys Lys Arg Cys Ser  
85 90 95  
Asp Asn Thr Glu Val Glu Val Ser Asn Leu Glu Asn Lys Gln Pro Val  
100 105 110  
Glu Ser Thr Ser Ala Lys Ser Cys Ser Pro Ser Pro Val Ser Pro Gln  
115 120 125

Val Gln Pro Gln Ala Ala Asp Thr Ile Ser Asp Ser Val Ala Val Pro  
130 135 140

Ala Ser Leu Leu Gly Met Arg Arg Gly Leu Asn Ser Arg Leu Glu Ala  
145 150 155 160

Thr Ala Ala Xaa Ser Val Lys Thr Arg Met Gln Lys Leu Ala Glu Gln  
165 170 175

Arg Arg Arg Trp Asp Asn Asp Asp Met Thr Asp Asp Ile Pro Glu Ser  
180 185 190

Ser Leu Phe Ser Pro Met Pro Ser Glu Glu Lys Xaa Ala Phe Pro Ser  
195 200 205

Gln Thr Ser Xaa Phe Gln Xaa Ala Phe Gly Asn Phe Gln Leu Ala Lys  
210 215 220

Lys Gly Ala Arg  
225

<210> 1224

<211> 178

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (142)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1224

Val Asp Cys Gly Asn Xaa Ala Ala Lys Trp Phe Thr Asn Phe Leu Lys  
1 5 10 15

Thr Glu Ala Tyr Arg Leu Val Gln Phe Xaa Thr Asn Met Lys Gly Arg  
20 25 30

Thr Ser Arg Lys Leu Leu Pro Thr Leu Asp Gln Asn Phe Gln Val Ala

35                      40                      45  
 Tyr Pro Asp Tyr Cys Pro Leu Leu Ile Met Thr Asp Ala Ser Leu Val  
     50                      55                      60  
 Asp Leu Asn Thr Arg Met Glu Lys Lys Met Lys Met Glu Asn Phe Arg  
     65                      70                      75                      80  
 Pro Asn Ile Val Val Thr Gly Cys Asp Ala Phe Glu Glu Asp Thr Trp  
                     85                      90                      95  
 Asp Glu Leu Leu Ile Gly Ser Val Glu Val Lys Lys Val Met Ala Cys  
                     100                      105                      110  
 Pro Arg Cys Ile Leu Thr Thr Val Asp Pro Asp Thr Gly Val Ile Asp  
                     115                      120                      125  
 Arg Lys Gln Pro Leu Asp Thr Leu Lys Ser Tyr Arg Leu Xaa Asp Pro  
                     130                      135                      140  
 Ser Glu Arg Glu Leu Tyr Lys Leu Ser Pro Leu Phe Gly Ile Tyr Tyr  
     145                      150                      155                      160  
 Ser Val Glu Lys Ile Gly Ser Leu Arg Val Gly Asp Pro Val Tyr Arg  
                     165                      170                      175

Met Val

<210> 1225  
 <211> 64  
 <212> PRT  
 <213> Homo sapiens

<400> 1225  
 Arg Asn Ile Trp Lys Arg Gln Lys Thr Lys Lys Glu Glu Lys Arg Ser  
     1                      5                      10                      15  
 Leu Leu Asp Thr Leu Leu Lys Tyr Asn His Ile Asn Ile Leu Ser Tyr  
                     20                      25                      30  
 Phe Leu Pro Ala Phe Leu Gly Gln Ile Leu Val Gly Phe Tyr Ile Val  
                     35                      40                      45  
 Glu Ile Val Leu Phe Ile Gln Phe Tyr Thr Leu Phe His Leu Thr Leu  
                     50                      55                      60

<210> 1226  
<211> 33  
<212> PRT  
<213> Homo sapiens

<400> 1226  
Lys Gly Asn Lys Ser Trp Ser Ser Thr Ala Val Ala Ala Ala Leu Glu  
1 5 10 15  
Leu Val Asp Pro Pro Gly Cys Arg Asn Val Thr Ile Ser Thr Cys Cys  
20 25 30  
Pro

<210> 1227  
<211> 402  
<212> PRT  
<213> Homo sapiens

<400> 1227  
Asp Gln Ala Gly Pro Ala Ser Ala Glu Gln Leu His Ala Gly Pro Ala  
1 5 10 15  
Thr Glu Glu Pro Gly Pro Cys Leu Ser Gln Gln Leu His Ser Ala Ser  
20 25 30  
Ala Glu Asp Thr Pro Val Val Gln Leu Ala Ala Glu Thr Pro Thr Ala  
35 40 45  
Glu Ser Lys Glu Arg Ala Leu Asn Ser Ala Ser Thr Ser Leu Pro Thr  
50 55 60  
Ser Cys Pro Gly Ser Glu Pro Val Pro Thr His Gln Gln Gly Gln Pro  
65 70 75 80  
Ala Leu Glu Leu Lys Glu Glu Ser Phe Arg Asp Pro Ala Glu Val Leu  
85 90 95  
Gly Thr Gly Ala Glu Val Asp Tyr Leu Glu Gln Phe Gly Thr Ser Ser  
100 105 110  
Phe Lys Glu Ser Ala Leu Arg Lys Gln Ser Leu Tyr Leu Lys Phe Asp  
115 120 125  
Pro Leu Leu Arg Asp Ser Pro Gly Arg Pro Val Pro Val Ala Thr Glu

130                      135                      140  
 Thr Ser Ser Met His Gly Ala Asn Glu Thr Pro Ser Gly Arg Pro Arg  
 145                      150                      155                      160  
 Glu Ala Lys Leu Val Glu Phe Asp Phe Leu Gly Ala Leu Asp Ile Pro  
                     165                      170                      175  
 Val Pro Gly Pro Pro Pro Gly Val Pro Ala Pro Gly Gly Pro Pro Leu  
                     180                      185                      190  
 Ser Thr Gly Pro Ile Val Asp Leu Leu Gln Tyr Ser Gln Lys Asp Leu  
                     195                      200                      205  
 Asp Ala Val Val Lys Ala Thr Gln Glu Glu Asn Arg Glu Leu Arg Ser  
                     210                      215                      220  
 Arg Cys Glu Glu Leu His Gly Lys Asn Leu Glu Leu Gly Lys Ile Met  
 225                      230                      235                      240  
 Asp Arg Phe Glu Glu Val Val Tyr Gln Ala Met Glu Glu Val Gln Lys  
                     245                      250                      255  
 Gln Lys Glu Leu Ser Lys Ala Glu Ile Gln Lys Val Leu Lys Glu Lys  
                     260                      265                      270  
 Asp Gln Leu Thr Thr Asp Leu Asn Ser Met Glu Lys Ser Phe Ser Asp  
                     275                      280                      285  
 Leu Phe Lys Arg Phe Glu Lys Gln Lys Glu Val Ile Glu Gly Tyr Arg  
                     290                      295                      300  
 Lys Asn Glu Glu Ser Leu Lys Lys Cys Val Glu Asp Tyr Leu Ala Arg  
 305                      310                      315                      320  
 Ile Thr Gln Glu Gly Gln Arg Tyr Gln Ala Leu Lys Ala His Ala Glu  
                     325                      330                      335  
 Glu Lys Leu Gln Leu Ala Asn Glu Glu Ile Ala Gln Val Arg Ser Lys  
                     340                      345                      350  
 Ala Gln Ala Glu Ala Leu Ala Leu Gln Ala Ser Leu Arg Lys Glu Gln  
                     355                      360                      365  
 Met Arg Ile Gln Ser Leu Glu Lys Thr Val Glu Gln Lys Thr Lys Glu  
                     370                      375                      380  
 Asn Glu Glu Leu Thr Arg Ile Cys Asp Asp Leu Ile Ser Lys Met Glu  
 385                      390                      395                      400  
 Lys Ile

<210> 1228

<211> 460

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (147)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (435)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1228

Lys Gly Ala Gly Arg Cys Arg Leu Ser Lys Ile Gly Ala Thr Arg Arg  
1 5 10 15

Pro Pro Pro Ala Arg Val Arg Val Ala Val Arg Leu Arg Pro Phe Val  
20 25 30

Asp Gly Thr Ala Gly Ala Ser Asp Pro Pro Cys Val Arg Gly Met Asp  
35 40 45

Ser Cys Ser Leu Glu Ile Ala Asn Trp Arg Asn His Gln Glu Thr Leu  
50 55 60

Lys Tyr Gln Phe Asp Ala Phe Tyr Gly Glu Xaa Ser Thr Gln Gln Asp  
65 70 75 80

Ile Tyr Ala Gly Ser Val Gln Pro Ile Leu Arg His Leu Leu Glu Gly  
85 90 95

Gln Asn Ala Ser Val Leu Ala Tyr Gly Pro Thr Gly Ala Gly Lys Thr  
100 105 110

His Thr Met Leu Gly Ser Pro Glu Gln Pro Gly Val Ile Pro Arg Ala  
115 120 125

Leu Met Asp Leu Leu Gln Leu Thr Arg Glu Glu Gly Ala Glu Gly Arg  
130 135 140

Pro Trp Xaa Leu Ser Val Thr Met Ser Tyr Leu Glu Ile Tyr Gln Glu  
145 150 155 160

Lys Val Leu Asp Leu Leu Asp Pro Ala Ser Gly Asp Leu Val Ile Arg  
165 170 175

Glu Asp Cys Arg Gly Asn Ile Leu Ile Pro Gly Leu Ser Gln Lys Pro  
180 185 190

Ile Ser Ser Phe Ala Asp Phe Glu Arg His Phe Leu Pro Ala Ser Arg  
195 200 205

Asn Arg Thr Val Gly Ala Thr Arg Leu Asn Gln Arg Ser Ser Arg Ser  
210 215 220

His Ala Val Leu Leu Val Lys Val Asp Gln Arg Glu Arg Leu Ala Pro  
225 230 235 240

Phe Arg Gln Arg Glu Gly Lys Leu Tyr Leu Ile Asp Leu Ala Gly Ser  
245 250 255

Glu Asp Asn Arg Arg Thr Gly Asn Lys Gly Leu Arg Leu Lys Glu Ser  
260 265 270

Gly Ala Ile Asn Thr Ser Leu Phe Val Leu Gly Lys Val Val Asp Ala  
275 280 285

Leu Asn Gln Gly Leu Pro Arg Val Pro Tyr Arg Asp Ser Lys Leu Thr  
290 295 300

Arg Leu Leu Gln Asp Ser Leu Gly Gly Ser Ala His Ser Ile Leu Ile  
305 310 315 320

Ala Asn Ile Ala Pro Glu Arg Arg Phe Tyr Leu Asp Thr Val Ser Ala  
325 330 335

Leu Asn Phe Ala Ala Arg Ser Lys Glu Val Ile Asn Arg Pro Phe Thr  
340 345 350

Asn Glu Ser Leu Gln Pro His Ala Leu Gly Pro Val Lys Leu Ser Gln  
355 360 365

Lys Glu Leu Leu Gly Pro Pro Glu Ala Lys Arg Ala Arg Gly Pro Glu  
370 375 380

Glu Glu Glu Ile Gly Ser Pro Glu Pro Met Ala Ala Pro Ala Ser Ala  
385 390 395 400

Ser Gln Lys Leu Ser Pro Leu Gln Lys Leu Ser Ser Met Asp Pro Ala  
405 410 415



Met Leu Glu Arg Leu Leu Gln Leu Gly Pro Ser Ala Cys Leu Pro Gly  
420 425 430

Glu Pro Xaa Gly Pro Ser Val Glu Tyr Pro Lys Ala Arg Ala Asp Gly  
435 440 445

Ala Asn Glu Asp Ser Arg Arg Glu Gly Pro Arg Asp  
450 455 460

<210> 1229

<211> 239

<212> PRT

<213> Homo sapiens

<400> 1229

Ala Arg Gly Arg Leu Ala Phe Pro Cys Gly Arg Pro Asp Tyr Trp Ala  
1 5 10 15

Leu Ala Arg Arg Thr Ile Gly Thr Gly Leu Glu Arg Lys Ala Leu Gly  
20 25 30

Leu Pro Gly Ser Ser Glu Arg Pro Thr Ser Val Ser Ser Tyr Gln Gly  
35 40 45

Thr Arg Ile Arg Cys Ser Asn Pro Gly Gly Lys Met Arg Pro Leu Thr  
50 55 60

Glu Glu Glu Thr Arg Val Met Phe Glu Lys Ile Ala Lys Tyr Ile Gly  
65 70 75 80

Glu Asn Leu Gln Leu Leu Val Asp Arg Pro Asp Gly Thr Tyr Cys Phe  
85 90 95

Arg Leu His Asn Asp Arg Val Tyr Tyr Val Ser Glu Lys Ile Met Lys  
100 105 110

Leu Ala Ala Asn Ile Ser Gly Asp Lys Leu Val Ser Leu Gly Thr Cys  
115 120 125

Phe Gly Lys Phe Thr Lys Thr His Lys Phe Arg Leu His Val Thr Ala  
130 135 140

Leu Asp Tyr Leu Ala Pro Tyr Ala Lys Tyr Lys Val Trp Ile Lys Pro  
145 150 155 160

Gly Ala Glu Gln Ser Phe Leu Tyr Gly Asn His Val Leu Lys Ser Gly  
165 170 175

Leu Gly Arg Ile Thr Glu Asn Thr Ser Gln Tyr Gln Gly Val Val Val  
180 185 190

Tyr Ser Met Ala Asp Ile Pro Leu Gly Phe Gly Val Ala Ala Lys Ser  
195 200 205

Thr Gln Asp Cys Arg Lys Val Asp Pro Met Ala Ile Val Val Phe His  
210 215 220

Gln Ala Asp Ile Gly Glu Tyr Val Arg His Glu Glu Thr Leu Thr  
225 230 235

<210> 1230

<211> 276

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (253)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1230

Ser Ala Val Val Ser Gly Cys Arg Val Arg Ser Cys Thr Ser Phe Ser  
1 5 10 15

Asp Glu Pro Met Thr Gly Trp Met Ala Ala Ala Val Val Thr Leu Met  
20 25 30

Ile Arg Met Cys Phe Ser Val Tyr Thr Met Leu Ser Glu Ser Cys Gln  
35 40 45

Arg Met Val Ile Val Gly Tyr Gly Xaa Leu Leu Arg Arg Gln Ala Glu  
50 55 60

Leu Asp Gly Met Pro Ala Ile Asn Ala Lys Arg Val Tyr Arg Ile Met  
65 70 75 80

Arg Gln Asn Ala Leu Leu Glu Arg Lys Pro Ala Val Pro Pro Ser  
85 90 95

Lys Arg Ala His Thr Gly Arg Val Ala Val Lys Glu Ser Asn Gln Arg  
100 105 110

Trp Cys Ser Asp Gly Phe Glu Phe Cys Cys Asp Asn Gly Glu Arg Leu  
115 120 125

Arg Val Thr Phe Ala Leu Asp Cys Cys Asp Arg Glu Ala Leu His Trp  
130 135 140

Ala Val Thr Thr Gly Gly Phe Asn Ser Glu Thr Val Gln Asp Val Met  
145 150 155 160

Leu Gly Ala Val Glu Arg Arg Phe Gly Asn Asp Leu Pro Ser Ser Pro  
165 170 175

Val Glu Trp Leu Thr Asp Asn Gly Ser Cys Tyr Arg Ala Asn Glu Thr  
180 185 190

Arg Gln Phe Ala Arg Met Leu Gly Leu Glu Pro Lys Asn Thr Ala Val  
195 200 205

Arg Ser Pro Glu Ser Asn Gly Ile Ala Glu Ser Phe Val Lys Thr Ile  
210 215 220

Lys Arg Asp Tyr Ile Ser Ile Met Pro Lys Pro Asp Gly Leu Thr Ala  
225 230 235 240

Ala Lys Asn Leu Ala Glu Ala Phe Glu His Tyr Asn Xaa Trp His Pro  
245 250 255

His Ser Ala Leu Gly Tyr Arg Ser Pro Arg Glu Tyr Leu Arg His Gly  
260 265 270

Leu Val Met Gly  
275

<210> 1231

<211> 296

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1231

Lys Thr Ile His Leu Xaa Thr Phe Ile Val Leu Ile Arg Arg Leu Asp  
1 5 10 15

Cys Asn Phe Asp Ile Lys Val Leu Asn Ala Gln Arg Ala Gly Tyr Lys  
20 25 30

Ala Ala Ile Val His Asn Val Asp Ser Asp Asp Leu Ile Ser Met Gly  
           35                          40                          45

Ser Asn Asp Ile Glu Val Leu Lys Lys Ile Asp Ile Pro Ser Val Phe  
           50                          55                          60

Ile Gly Glu Ser Ser Ala Asn Ser Leu Lys Asp Glu Phe Thr Tyr Glu  
           65                          70                          75                          80

Lys Gly Gly His Leu Ile Leu Val Pro Glu Phe Ser Leu Pro Leu Glu  
                           85                          90                          95

Tyr Tyr Leu Ile Pro Phe Leu Ile Ile Val Gly Ile Cys Leu Ile Leu  
                           100                          105                          110

Ile Val Ile Phe Met Ile Thr Lys Phe Val Gln Asp Arg His Arg Ala  
           115                          120                          125

Arg Arg Asn Arg Leu Arg Lys Asp Gln Leu Lys Lys Leu Pro Val His  
           130                          135                          140

Lys Phe Lys Lys Gly Asp Glu Tyr Asp Val Cys Ala Ile Cys Leu Asp  
           145                          150                          155                          160

Glu Tyr Glu Asp Gly Asp Lys Leu Arg Ile Leu Pro Cys Ser His Ala  
                           165                          170                          175

Tyr His Cys Lys Cys Val Asp Pro Trp Leu Thr Lys Thr Lys Lys Thr  
                           180                          185                          190

Cys Pro Val Cys Lys Gln Lys Val Val Pro Ser Gln Gly Asp Ser Asp  
           195                          200                          205

Ser Asp Thr Asp Ser Ser Gln Glu Glu Asn Glu Val Thr Glu His Thr  
           210                          215                          220

Pro Leu Leu Arg Pro Leu Ala Ser Val Ser Ala Gln Ser Phe Gly Ala  
           225                          230                          235                          240

Leu Ser Glu Ser Arg Ser His Gln Asn Met Thr Glu Ser Ser Asp Tyr  
                           245                          250                          255

Glu Glu Asp Asp Asn Glu Asp Thr Asp Ser Ser Asp Ala Glu Asn Glu  
                           260                          265                          270

Ile Asn Glu His Asp Val Val Val Gln Leu Gln Pro Asn Gly Glu Arg  
           275                          280                          285

Asp Tyr Asn Ile Ala Asn Thr Val  
           290                          295

&lt;210&gt; 1232

&lt;211&gt; 69

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1232

Asn Gln His Lys Glu Tyr Asp Lys Thr Pro Val Gly Asn Pro Glu Cys  
1 5 10 15  
Ser Gly Pro Ser Cys Gly Leu Phe Tyr Gly Phe Met Lys Gly Pro Cys  
20 25 30  
Pro His Gly Gly Asp His Gly Leu Ala Cys Gly Val Leu Gly Asp Gly  
35 40 45  
Cys Leu Leu Ser Ser Ser Pro His Pro Ala Ser Cys Trp His Leu Gly  
50 55 60  
Glu Glu Ser Ser Lys  
65

&lt;210&gt; 1233

&lt;211&gt; 423

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1233

Leu Tyr Arg Gln Asp Tyr Asn Pro Lys Pro Lys Pro Ser Asn Glu Ile  
1 5 10 15  
Thr Arg Glu Tyr Ile Pro Lys Ile Gly Met Thr Thr Tyr Lys Ile Val  
20 25 30  
Pro Pro Lys Ser Leu Glu Ile Ser Lys Asp Trp Gln Ser Glu Thr Ile  
35 40 45  
Glu Tyr Lys Asp Asp Gln Asp Met His Ala Leu Gly Lys Lys His Thr  
50 55 60  
His Glu Asn Val Lys Glu Thr Ala Ile Gln Thr Glu Asp Ser Ala Ile  
65 70 75 80  
Ser Glu Ser Pro Glu Glu Pro Leu Pro Asn Leu Lys Pro Lys Pro Asn  
85 90 95  
Leu Arg Thr Glu His Gln Val Pro Ser Ser Val Ser Ser Pro Asp Asp

100	105	110
Ala Met Val Ser Pro Leu Lys	Pro Ala Pro Lys Met Thr Arg Asp Thr	
115	120	125
Gly Thr Ala Pro Phe Ala Pro Asn Leu Glu Glu Ile Asn Asn Ile Leu		
130	135	140
Glu Ser Lys Phe Lys Ser Arg Ala Ser Asn Ala Gln Ala Lys Pro Ser		
145	150	155
Ser Phe Phe Leu Gln Met Gln Lys Arg Val Ser Gly His Tyr Val Thr		
165	170	175
Ser Ala Ala Ala Lys Ser Val His Ala Ala Pro Asn Pro Ala Pro Lys		
180	185	190
Glu Leu Thr Asn Lys Glu Ala Glu Arg Asp Met Leu Pro Ser Pro Glu		
195	200	205
Gln Thr Leu Ser Pro Leu Ser Lys Met Pro His Ser Val Pro Gln Pro		
210	215	220
Leu Val Glu Lys Thr Asp Asp Asp Val Ile Gly Gln Ala Pro Ala Glu		
225	230	235
Ala Ser Pro Pro Pro Ile Ala Pro Lys Pro Val Thr Ile Pro Ala Ser		
245	250	255
Gln Val Ser Thr Gln Asn Leu Lys Thr Leu Lys Thr Phe Gly Ala Pro		
260	265	270
Arg Pro Tyr Ser Ser Ser Gly Pro Ser Pro Phe Ala Leu Ala Val Val		
275	280	285
Lys Arg Ser Gln Ser Phe Ser Lys Glu Arg Thr Glu Ser Pro Ser Ala		
290	295	300
Ser Ala Leu Val Gln Pro Pro Ala Asn Thr Glu Glu Gly Lys Thr His		
305	310	315
Ser Val Asn Lys Phe Val Asp Ile Pro Gln Leu Gly Val Ser Asp Lys		
325	330	335
Glu Asn Asn Ser Ala His Asn Glu Gln Asn Ser Gln Ile Pro Thr Pro		
340	345	350
Thr Asp Gly Pro Ser Phe Thr Val Met Arg Gln Ser Ser Leu Thr Phe		
355	360	365
Gln Ser Ser Asp Pro Glu Gln Met Arg Gln Ser Leu Leu Thr Ala Ile		

370

375

380

Arg Ser Gly Glu Ala Ala Ala Lys Leu Lys Arg Val Thr Ile Pro Ser  
385 390 395 400

Asn Thr Ile Ser Val Asn Gly Arg Ser Arg Leu Ser His Ser Met Ser  
405 410 415

Pro Asp Ala Gln Asp Gly His  
420

&lt;210&gt; 1234

&lt;211&gt; 231

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (225)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1234

Thr Ala Lys Lys Asn His Lys Lys Leu Thr Ile Asn Pro Cys Glu Ile  
1 5 10 15

Ser Gly Cys Pro Lys Pro Thr Gln Ile Ile Ala Gly Asp Arg Pro Asp  
20 25 30

Asn His Trp Leu His Tyr Asp Ser Lys Thr Ile Pro Arg Thr Lys Lys  
35 40 45

Glu Trp Glu Ser Ser Cys Phe Val Glu Lys Thr His Trp Gly Tyr Tyr  
50 55 60

Thr Trp Pro Lys Asn Met Val Val Tyr Ala Gly Val Glu Glu Gln Pro  
65 70 75 80

Lys Leu Gly Arg Ser Arg Glu Asp Met Thr Glu Ala Glu Gln Ile Ile  
85 90 95

Phe Asp His Phe Ser Asp Pro Lys Phe Val Glu Gln Leu Ile Thr Phe  
100 105 110

Leu Ser Leu Glu Asp Arg Lys Gly Lys Asp Lys Phe Asn Pro Arg Arg  
115 120 125

Phe Cys Leu Phe Lys Gly Ile Phe Arg Asn Phe Asp Asp Ala Phe Leu  
130 135 140

Pro Val Leu Lys Pro His Leu Glu His Leu Val Ala Asp Ser His Glu  
145 150 155 160

Ser Thr Gln Arg Cys Val Ala Glu Ile Ile Ala Gly Leu Ile Arg Gly  
165 170 175

Ser Lys His Trp Thr Phe Glu Lys Val Glu Lys Leu Trp Glu Leu Leu  
180 185 190

Cys Pro Leu Leu Arg Thr Ala Leu Ser Asn Ile Thr Val Glu Thr Tyr  
195 200 205

Asn Asp Trp Gly Ala Cys Ile Ala Thr Ser Cys Glu Ser Arg Asp Pro  
210 215 220

Xaa Glu Thr Ser Leu Ala Phe  
225 230

<210> 1235

<211> 302

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (226)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1235

Arg Xaa Gly Ile Pro Gly Ser Thr His Ala Ser Gly Ala Val Ala Leu  
1 5 10 15

Tyr Phe Ile Asp Lys Leu Ala Leu Arg Ala Gly Asn Glu Lys Glu Asp  
20 25 30

Gly Glu Ala Ala Asp Thr Val Gly Cys Cys Ser Leu Arg Val Glu His  
35 40 45

Val Gln Leu His Pro Glu Ala Asp Gly Cys Gln His Val Val Glu Phe  
50 55 60

Asp Phe Leu Gly Lys Asp Cys Ile Arg Tyr Tyr Asn Arg Val Pro Val  
65 70 75 80



Glu Lys Pro Val Tyr Lys Asn Leu Gln Leu Phe Met Glu Asn Lys Asp  
85 90 95

Pro Arg Asp Asp Leu Phe Asp Arg Leu Thr Thr Thr Ser Leu Asn Lys  
100 105 110

His Leu Gln Glu Leu Met Asp Gly Leu Thr Ala Lys Val Phe Arg Thr  
115 120 125

Tyr Asn Ala Ser Ile Thr Leu Gln Glu Gln Leu Arg Ala Leu Thr Arg  
130 135 140

Ala Glu Asp Ser Ile Ala Ala Lys Ile Leu Ser Tyr Asn Arg Ala Asn  
145 150 155 160

Arg Val Val Ala Ile Leu Cys Asn His Gln Arg Ala Thr Pro Ser Thr  
165 170 175

Phe Glu Lys Ser Met Gln Asn Leu Gln Thr Lys Ile Gln Ala Lys Lys  
180 185 190

Glu Gln Val Ala Glu Ala Arg Ala Glu Leu Arg Arg Ala Arg Ala Glu  
195 200 205

His Lys Ala Gln Gly Asp Gly Lys Ser Arg Ser Val Leu Glu Lys Lys  
210 215 220

Arg Xaa Leu Leu Glu Lys Leu Gln Glu Gln Leu Ala Gln Leu Ser Val  
225 230 235 240

Gln Ala Thr Asp Lys Glu Glu Asn Lys Gln Val Ala Leu Gly Thr Ser  
245 250 255

Lys Leu Asn Tyr Leu Asp Pro Arg Ile Ser Ile Ala Trp Cys Lys Arg  
260 265 270

Phe Arg Val Pro Val Glu Lys Ile Tyr Ser Lys Thr Gln Arg Glu Arg  
275 280 285

Phe Ala Trp Ala Leu Ala Met Ala Gly Glu Asp Phe Glu Phe  
290 295 300

&lt;210&gt; 1236

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1236

Ala Val Leu Val Ser Leu Glu Tyr Leu Ser Asp Arg Ile Lys Leu Lys



Pro Gly Thr Met Gly Ala Leu Tyr Ile Glu Arg Pro Ala Asp Val Glu  
180 185 190

Glu Gly Phe Ser Ile Gln Ala Pro Leu Val Tyr His Phe Gly Ser Thr  
195 200 205

Thr Pro Gly Thr Asn Ile Lys Leu Tyr Asn Lys Ile Thr Ser Arg Leu  
210 215 220

Ala Asp Val Phe Asn Gln Arg Cys Glu Val Asn Arg Arg His Leu  
225 230 235

<210> 1238

<211> 315

<212> PRT

<213> Homo sapiens

<400> 1238

Leu Leu Thr Arg Asn Met Asp Arg Leu Leu Arg Leu Gly Gly Gly Met  
1 5 10 15

Pro Gly Leu Gly Gln Gly Pro Pro Thr Asp Ala Pro Ala Val Asp Thr  
20 25 30

Ala Glu Gln Val Tyr Ile Ser Ser Leu Ala Leu Leu Lys Met Leu Lys  
35 40 45

His Gly Arg Ala Gly Val Pro Met Glu Val Met Gly Leu Met Leu Gly  
50 55 60

Glu Phe Val Asp Asp Tyr Thr Val Arg Val Ile Asp Val Phe Ala Met  
65 70 75 80

Pro Gln Ser Gly Thr Gly Val Ser Val Glu Ala Val Asp Pro Val Phe  
85 90 95

Gln Ala Lys Met Leu Asp Met Leu Lys Gln Thr Gly Arg Pro Glu Met  
100 105 110

Val Val Gly Trp Tyr His Ser His Pro Gly Phe Gly Cys Trp Leu Ser  
115 120 125

Gly Val Asp Ile Asn Thr Gln Gln Ser Phe Glu Ala Leu Ser Glu Arg  
130 135 140

Ala Val Ala Val Val Val Asp Pro Ile Gln Ser Val Lys Gly Lys Val  
145 150 155 160

Val Ile Asp Ala Phe Arg Leu Ile Asn Ala Asn Met Met Val Leu Gly  
                   165                  170                  175  
 His Glu Pro Arg Gln Thr Thr Ser Asn Leu Gly His Leu Asn Lys Pro  
                   180                  185                  190  
 Ser Ile Gln Ala Leu Ile His Gly Leu Asn Arg His Tyr Tyr Ser Ile  
                   195                  200                  205  
 Thr Ile Asn Tyr Arg Lys Asn Glu Leu Glu Gln Lys Met Leu Leu Asn  
                   210                  215                  220  
 Leu His Lys Lys Ser Trp Met Glu Gly Leu Thr Leu Gln Asp Tyr Ser  
 225                  230                  235                  240  
 Glu His Cys Lys His Asn Glu Ser Val Val Lys Glu Met Leu Glu Leu  
                   245                  250                  255  
 Ala Lys Asn Tyr Asn Lys Ala Val Glu Glu Glu Asp Lys Met Thr Pro  
                   260                  265                  270  
 Glu Gln Leu Ala Ile Lys Asn Val Gly Lys Gln Asp Pro Lys Arg His  
                   275                  280                  285  
 Leu Glu Glu His Val Asp Val Leu Met Thr Ser Asn Ile Val Gln Cys  
                   290                  295                  300  
 Leu Ala Ala Met Leu Asp Thr Val Val Phe Lys  
 305                  310                  315

&lt;210&gt; 1239

&lt;211&gt; 283

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (253)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (259)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1239

Leu Arg Gly Ser Asp Ala Gly Ser Gly Asp Glu Val Ala Ala Gly Gly  
   1                  5                  10                  15

Ser Arg Ala Val Ala Ala Ala Ala Leu Pro Arg Ser Gly Arg Val Gly  
20 25 30

Ala Ser Gly Pro Ala Ser Ala Pro Leu His Pro Arg Leu Ala Glu Pro  
35 40 45

Gly Phe Ser Ala Ala Ala Gly Leu Val Arg Arg Ser Gln Val Arg Gly  
50 55 60

Val His Pro Leu Gly Arg Val Leu Gly Ala Arg Leu Gly Gln Arg Val  
65 70 75 80

Val Leu Val Ala Leu Ala Gly Arg Gly Ala Ala Ala Val Pro Ala Leu  
85 90 95

His Ala Arg Gln Leu Pro Ala Arg Leu Gln Leu Arg Arg Leu Arg Thr  
100 105 110

Ala Val His Cys Ala Leu Leu Pro Pro Gly Glu Trp Ala Asp Leu Phe  
115 120 125

Gln Ala Ala Gly Ala Lys Tyr Val Val Leu Thr Thr Lys His His Glu  
130 135 140

Gly Phe Thr Asn Trp Pro Ser Pro Val Ser Trp Asn Trp Asn Ser Lys  
145 150 155 160

Asp Val Gly Pro His Arg Asp Leu Val Gly Glu Leu Gly Thr Ala Leu  
165 170 175

Arg Lys Arg Asn Ile Arg Tyr Gly Leu Tyr His Ser Leu Leu Glu Trp  
180 185 190

Phe His Pro Leu Tyr Leu Leu Asp Lys Lys Asn Gly Phe Lys Thr Gln  
195 200 205

His Phe Val Ser Ala Lys Thr Met Pro Glu Leu Tyr Asp Leu Val Asn  
210 215 220

Ser Tyr Lys Pro Asp Leu Ile Trp Ser Asp Gly Glu Trp Glu Cys Pro  
225 230 235 240

Asp Thr Tyr Trp Asn Ser Thr Asn Phe Leu Ser Trp Xaa Tyr Asn Asp  
245 250 255

Ser Pro Xaa Lys Val Ser Val Gly Ser Leu Arg Ala Arg Thr Leu Phe  
260 265 270

Tyr Ser Thr Trp Glu Leu Ser Val Cys His Met  
275 280

<210> 1240  
 <211> 180  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (4)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (7)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (175)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1240  
 Thr Thr Ser Xaa Glu Arg Xaa Leu Thr Gly Pro Glu Pro Leu Arg Arg  
     1                    5                    10                    15  
 Arg Arg Leu Cys Ser Arg Gln Leu Ala Pro Ala Ala Met Pro Thr Thr  
           20                    25                    30  
 Ile Glu Arg Glu Phe Glu Glu Leu Asp Thr Gln Arg Arg Trp Gln Pro  
       35                    40                    45  
 Leu Tyr Leu Glu Ile Arg Asn Glu Ser His Asp Tyr Pro His Arg Val  
       50                    55                    60  
 Ala Lys Phe Pro Glu Asn Arg Asn Arg Asn Arg Tyr Arg Asp Val Ser  
       65                    70                    75                    80  
 Pro Tyr Asp His Ser Arg Val Lys Leu Gln Asn Ala Glu Asn Asp Tyr  
           85                    90                    95  
 Ile Asn Ala Ser Leu Val Asp Ile Glu Glu Ala Gln Arg Ser Tyr Ile  
       100                    105                    110  
 Leu Thr Gln Gly Pro Leu Pro Asn Thr Cys Cys His Phe Trp Leu Met  
       115                    120                    125  
 Val Trp Gln Gln Lys Thr Lys Ala Val Val Met Leu Asn Arg Ile Val  
       130                    135                    140  
 Glu Lys Glu Ser Ser Gly Glu Thr Glu Gln Tyr Leu Thr Phe Ile Ile

145                      150                      155                      160  
Leu Pro Gly Gln Asn Leu Glu Ser Leu Glu Ser Thr Ser Phe Xaa Ser  
                         165                      170                      175  
Gln Phe Leu Gly  
                         180

<210> 1241  
<211> 19  
<212> PRT  
<213> Homo sapiens

<400> 1241  
Ser Arg Asp Gly Val Ser Pro His Trp Pro Gly Trp Ser Gln Thr Pro  
1                      5                      10                      15

Asp Leu Lys

<210> 1242  
<211> 133  
<212> PRT  
<213> Homo sapiens

<400> 1242  
Ala Phe Asp Leu Cys Tyr Leu Tyr Ser Trp Asp Leu Ile Arg Lys Met  
1                      5                      10                      15

Cys Phe Val Val Leu Asp Lys Leu Phe His Pro Leu Phe Pro Pro Gln  
                         20                      25                      30

Asn Thr His Thr Glu Gln Thr Pro Phe His Lys Ser Pro His Ile His  
                         35                      40                      45

Trp Gln Ser Pro Phe Ala Ser Trp Ser Pro Cys Val Pro Pro Lys Ser  
                         50                      55                      60

Ile Met Phe Glu Ser Leu Trp Trp Met Leu Trp Gly Lys Val Met Ile  
65                      70                      75                      80

Tyr Thr Glu Ala Thr Ala Lys Ser Val Val Gln Pro Leu Ser Pro Val  
                         85                      90                      95

Lys Tyr Cys Ile Thr Pro Phe Gly Thr Thr Glu Lys Thr Val Ala Phe  
                         100                      105                      110

Leu Gln Tyr Ser Ser Leu Leu His His Phe Cys Ile Asn Val Glu Thr  
115 120 125

Lys His Gln Asn Leu  
130

<210> 1243  
<211> 70  
<212> PRT  
<213> Homo sapiens

<400> 1243  
Pro Ala Arg Cys Met Pro Gly Pro Trp Pro Pro Tyr Leu Ala Ala Ser  
1 5 10 15

Cys Asp Ser Glu Ile His Pro Ser Arg Trp Gln Leu Leu Gly Leu Asn  
20 25 30

Leu Leu Glu Lys Lys Val Pro Ser Gln Glu Asn Ser Phe Tyr Ser Gly  
35 40 45

Arg Asn Ala Ser Glu Thr Pro Gln Gly Ser Leu Asn Thr Gln Leu Gln  
50 55 60

Gly Arg Ala Cys Gly Gly  
65 70

<210> 1244  
<211> 51  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (37)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1244  
Val Tyr Thr Leu Pro Ser His Lys Pro Ile Phe Lys Arg Ser Asn Ala  
1 5 10 15

Met Thr Ala Ile Leu Gln Glu Lys Lys Lys Leu Tyr Ser Cys Gly Asp  
20 25 30

Val Pro His Thr Xaa His Gln Leu Gln Gly Val Cys Pro Leu Gln Thr  
35 40 45



Pro Glu Pro  
50

<210> 1245

<211> 111

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (48)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (97)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1245

Asn Ala Val Phe Ser Ile Thr Asp Leu Ser Leu Pro Asn Tyr Leu Met  
1 5 10 15

Ala Ser Ser Val Gly Leu Leu Pro Thr Gln Leu Leu Asn Ser Tyr Leu  
20 25 30

Gly Thr Thr Leu Arg Thr Met Glu Asp Val Ile Ala Glu Gln Ser Xaa  
35 40 45

Ser Gly Tyr Phe Val Phe Cys Leu Gln Ile Ile Ile Ser Ile Gly Leu  
50 55 60

Met Phe Tyr Val Val His Arg Ala Gln Val Glu Leu Asn Ala Ala Ile  
65 70 75 80

Val Ala Cys Glu Met Gly Thr Gly Asn Leu Leu Trp Leu Lys Gly Asn  
85 90 95

Xaa Pro Asn Thr Ser Gly Leu Phe His Ser Thr Thr Arg Gly Pro  
100 105 110

<210> 1246

<211> 223

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (184)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (195)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (198)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (216)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1246

Lys Gln Ala Gly Cys Ser Ala Ala Pro Gly Ala Val Pro Pro Pro Glu  
1 5 10 15

Ala Asp Ser Thr Ser Ala Gly Met Ser Arg Arg Pro Cys Ser Cys Ala  
20 25 30

Leu Arg Pro Pro Arg Cys Ser Cys Ser Ala Ser Pro Ser Ala Val Thr  
35 40 45

Ala Ala Gly Arg Pro Arg Pro Ser Asp Ser Cys Lys Glu Glu Ser Ser  
50 55 60

Thr Leu Ser Val Lys Met Lys Cys Asp Phe Asn Cys Asn His Val His  
65 70 75 80

Ser Gly Leu Lys Leu Val Lys Pro Asp Asp Ile Gly Arg Leu Val Ser  
85 90 95

Tyr Thr Pro Ala Tyr Leu Glu Gly Ser Cys Lys Asp Cys Ile Lys Asp  
100 105 110

Tyr Glu Arg Leu Ser Cys Ile Gly Ser Pro Ile Val Ser Pro Arg Ile  
115 120 125

Val Glu Leu Glu Thr Glu Ser Lys Arg Leu His Asn Lys Glu Asn Gln  
130 135 140

His Val Gln Gln Thr Leu Asn Ser Thr Asn Glu Ile Glu Ala Leu Glu  
145 150 155 160

Thr Ser Arg Leu Tyr Glu Asp Ser Ala Ile Pro Gln Phe Leu Tyr Lys  
165 170 175

Val Ala Ser Val Thr Met Lys Xaa Val Ala Phe Trp Arg Arg Asn Ser  
180 185 190

Val Thr Xaa Tyr Asn Xaa Gly Trp Leu Gln Ile Gln Gly Pro Asp Pro  
195 200 205

Ile Phe Pro Thr Lys Asn Phe Xaa Leu Ala Arg Ser Phe Asn Phe  
210 215 220

<210> 1247

<211> 54

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1247

Leu Glu Lys Lys Asp Ile Xaa Asn Met Leu Met Trp Arg Ser Pro Ser  
1 5 10 15

Tyr Pro Lys Gly Glu Lys Gln Gly Lys Asp Pro Leu His Ser Lys Phe  
20 25 30

Pro Leu Gly Ser Pro Arg Ala His Cys Pro Gln Met His Ile Ile Ser  
35 40 45

Ala Glu Ile Gln Lys Pro  
50

<210> 1248

<211> 77

<212> PRT

<213> Homo sapiens

<400> 1248

Arg Phe Leu Ser Phe Val Phe Gly Leu Asn Phe Ser Pro Arg Ser Leu  
1 5 10 15

Phe Val Ser Ser Phe Cys Phe Ser Thr Val Leu Val Ile Thr Leu Cys  
20 25 30

Trp Arg Glu Pro Val Ser Leu Trp Pro Pro Leu Pro Lys Leu Lys Gln  
35 40 45

Gly Pro Ile Ile Met Ser Val Ser Arg Thr Val Pro Trp Ser Ser His  
50 55 60

Ile Pro Gly Pro Arg Leu Gly Pro Pro Ser Cys Val Leu  
65 70 75

<210> 1249  
<211> 100  
<212> PRT  
<213> Homo sapiens

<400> 1249  
Asn Asn Ile Cys Ser Gln Met Val Phe Leu Ala Val Ser Pro Val Val  
1 5 10 15

Ala Met Phe Arg Val Val Val Leu Ile Tyr Leu Gly Val His Lys Thr  
20 25 30

Tyr Leu Ala Gly Leu Phe Lys Lys Phe Arg Phe Leu Ala Leu Tyr Pro  
35 40 45

Gly Ile Ala Ser Gly Gly Met Gly Cys Gly Pro Gly Val Ile Thr Phe  
50 55 60

Ile Asn Ser Gly Ser Glu Thr Thr Glu Arg Asp Cys Phe Ile Glu Trp  
65 70 75 80

Glu Val Pro Arg Arg Lys Tyr Asn Ser Val Leu Ser Gly Gly Lys Trp  
85 90 95

Thr Leu Cys Thr  
100

<210> 1250  
<211> 47  
<212> PRT  
<213> Homo sapiens

<400> 1250  
Ser Asn Leu Met Leu Thr Asn Leu Leu Cys Leu Leu Cys Cys Phe Leu  
1 5 10 15

Val Pro Ala Ser Ala Ala Leu Gln Met Gln Thr Ile Leu Ser Tyr Leu  
20 25 30

Ala Gly Leu Leu Phe Tyr Phe Val Gly Trp Met Leu Pro Ser Ser

35

40

45

&lt;210&gt; 1251

&lt;211&gt; 193

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (68)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1251

Lys Pro Gly Ser Thr Gly Xaa Val Arg Glu Gly Gln Pro Phe Glu Tyr  
 1 5 10 15

Phe Val Tyr Gly Ala Ala Cys Ser Glu Val Glu Ile Asp Cys Leu Thr  
 20 25 30

Gly Asp His Lys Asn Ile Arg Thr Asp Ile Val Met Asp Val Gly Cys  
 35 40 45

Ser Ile Asn Pro Ala Ile Asp Ile Gly Gln Ile Glu Gly Ala Phe Ile  
 50 55 60

Gln Gly Met Xaa Leu Tyr Thr Ile Glu Glu Leu Asn Tyr Ser Pro Gln  
 65 70 75 80

Gly Ile Leu His Thr Arg Gly Pro Asp Gln Tyr Lys Ile Pro Ala Ile  
 85 90 95

Cys Asp Met Pro Thr Glu Leu His Ile Ala Leu Leu Pro Pro Ser Gln  
 100 105 110

Asn Ser Asn Thr Leu Tyr Ser Ser Lys Gly Leu Gly Glu Ser Gly Val  
 115 120 125

Phe Leu Gly Cys Ser Val Phe Phe Ala Ile His Asp Ala Val Ser Ala  
 130 135 140

Ala Arg Gln Glu Arg Gly Leu His Gly Pro Leu Thr Leu Asn Ser Pro  
 145 150 155 160

Leu Thr Pro Glu Lys Ile Arg Met Ala Cys Glu Asp Lys Phe Thr Lys

165

170

175

Met Ile Pro Arg Asp Glu Pro Gly Ser Tyr Val Pro Trp Asn Val Pro  
180 185 190

Ile

&lt;210&gt; 1252

&lt;211&gt; 51

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1252

Gly Ser Ser Lys Gly Ile Phe Leu Leu Phe Ser Leu Phe Leu Gly Cys  
1 5 10 15

Ser Lys Phe Ser Arg Ser Ser Ser Arg Ile Arg Lys Arg Ser Ile Val  
20 25 30

Arg Asn Arg Phe Trp Val Leu Leu Lys Phe Ala Cys Gln His Cys Ile  
35 40 45

Thr Phe Pro  
50

&lt;210&gt; 1253

&lt;211&gt; 696

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (5)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (541)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1253

His Glu Arg Glu Xaa His Gly Leu Gly Ala Asp Cys Arg Ala Gly Arg  
1 5 10 15

Leu Val Val Met Pro Gly Phe Leu Val Arg Ile Leu Leu Leu Leu Leu  
20 25 30

Val Leu Leu Leu Leu Gly Pro Thr Arg Gly Leu Arg Asn Ala Thr Gln  
35 40 45

Arg Met Phe Glu Ile Asp Tyr Ser Arg Asp Ser Phe Leu Lys Asp Gly  
50 55 60

Gln Pro Phe Arg Tyr Ile Ser Gly Ser Ile His Tyr Ser Arg Val Pro  
65 70 75 80

Arg Phe Tyr Trp Lys Asp Arg Leu Leu Lys Met Lys Met Ala Gly Leu  
85 90 95

Asn Ala Ile Gln Thr Tyr Val Pro Trp Asn Phe His Glu Pro Trp Pro  
100 105 110

Gly Gln Tyr Gln Phe Ser Glu Asp His Asp Val Glu Tyr Phe Leu Arg  
115 120 125

Leu Ala His Glu Leu Gly Leu Leu Val Ile Leu Arg Pro Gly Pro Tyr  
130 135 140

Ile Cys Ala Glu Trp Glu Met Gly Gly Leu Pro Ala Trp Leu Leu Glu  
145 150 155 160

Lys Glu Ser Ile Leu Leu Arg Ser Ser Asp Pro Asp Tyr Leu Ala Ala  
165 170 175

Val Asp Lys Trp Leu Gly Val Leu Leu Pro Lys Met Lys Pro Leu Leu  
180 185 190

Tyr Gln Asn Gly Gly Pro Val Ile Thr Val Gln Val Glu Asn Glu Tyr  
195 200 205

Gly Ser Tyr Phe Ala Cys Asp Phe Asp Tyr Leu Arg Phe Leu Gln Lys  
210 215 220

Arg Phe Arg His His Leu Gly Asp Asp Val Val Leu Phe Thr Thr Asp  
225 230 235 240

Gly Ala His Lys Thr Phe Leu Lys Cys Gly Ala Leu Gln Gly Leu Tyr  
245 250 255

Thr Thr Val Asp Phe Gly Thr Gly Ser Asn Ile Thr Asp Ala Phe Leu  
260 265 270

Ser Gln Arg Lys Cys Glu Pro Lys Gly Pro Leu Ile Asn Ser Glu Phe  
275 280 285

Tyr Thr Gly Trp Leu Asp His Trp Gly Gln Pro His Ser Thr Ile Lys  
290 295 300

Thr Glu Ala Val Ala Ser Ser Leu Tyr Asp Ile Leu Ala Arg Gly Ala  
305 310 315 320

Ser Val Asn Leu Tyr Met Phe Ile Gly Gly Thr Asn Phe Ala Tyr Trp  
325 330 335

Asn Gly Ala Asn Ser Pro Tyr Ala Ala Gln Pro Thr Ser Tyr Asp Tyr  
340 345 350

Asp Ala Pro Leu Ser Glu Ala Gly Asp Leu Thr Glu Lys Tyr Phe Ala  
355 360 365

Leu Arg Asn Ile Ile Gln Lys Phe Glu Lys Val Pro Glu Gly Pro Ile  
370 375 380

Pro Pro Ser Thr Pro Lys Phe Ala Tyr Gly Lys Val Thr Leu Glu Lys  
385 390 395 400

Leu Lys Thr Val Gly Ala Ala Leu Asp Ile Leu Cys Pro Ser Gly Pro  
405 410 415

Ile Lys Ser Leu Tyr Pro Leu Thr Phe Ile Gln Val Lys Gln His Tyr  
420 425 430

Gly Phe Val Leu Tyr Arg Thr Thr Leu Pro Gln Asp Cys Ser Asn Pro  
435 440 445

Ala Pro Leu Ser Ser Pro Leu Asn Gly Val His Asp Arg Ala Tyr Val  
450 455 460

Ala Val Asp Gly Ile Pro Gln Gly Val Leu Glu Arg Asn Asn Val Ile  
465 470 475 480

Thr Leu Asn Ile Thr Gly Lys Ala Gly Ala Thr Leu Asp Leu Leu Val  
485 490 495

Glu Asn Met Gly Arg Val Asn Tyr Gly Ala Tyr Ile Asn Asp Phe Lys  
500 505 510

Gly Leu Val Ser Asn Leu Thr Leu Ser Ser Asn Ile Leu Thr Asp Trp  
515 520 525

Thr Ile Phe Pro Leu Asp Thr Glu Asp Ala Val Arg Xaa His Leu Gly  
530 535 540

Gly Trp Gly His Arg Asp Ser Gly His His Asp Glu Ala Trp Ala His  
545 550 555 560

Asn Ser Ser Asn Tyr Thr Leu Pro Ala Phe Tyr Met Gly Asn Phe Ser  
565 570 575



Ile Pro Ser Gly Ile Pro Asp Leu Pro Gln Asp Thr Phe Ile Gln Phe  
580 585 590

Pro Gly Trp Thr Lys Gly Gln Val Trp Ile Asn Gly Phe Asn Leu Gly  
595 600 605

Arg Tyr Trp Pro Ala Arg Gly Pro Gln Leu Thr Leu Phe Val Pro Gln  
610 615 620

His Ile Leu Met Thr Ser Ala Pro Asn Thr Ile Thr Val Leu Glu Leu  
625 630 635 640

Glu Trp Ala Pro Cys Ser Ser Asp Asp Pro Glu Leu Cys Ala Val Thr  
645 650 655

Phe Val Asp Arg Pro Val Ile Gly Ser Ser Val Thr Tyr Asp His Pro  
660 665 670

Ser Lys Pro Val Glu Lys Arg Leu Met Pro Pro Pro Pro Gln Lys Asn  
675 680 685

Lys Asp Ser Trp Leu Asp His Val  
690 695

<210> 1254

<211> 400

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (241)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (372)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1254

Thr Ser Ser Pro Ser Leu Ala Ser Asp Leu Leu Leu Asn Met Gly Ala  
1 5 10 15

Phe Leu Asp Lys Pro Lys Thr Glu Lys His Asn Ala His Gly Ala Gly  
20 25 30

Asn Gly Leu Arg Tyr Gly Leu Ser Ser Met Gln Gly Trp Arg Val Glu  
35 40 45

Met Glu Asp Ala His Thr Ala Val Val Gly Ile Pro His Gly Leu Glu  
50 55 60

Asp Trp Ser Phe Phe Ala Val Tyr Asp Gly His Ala Gly Ser Arg Val  
65 70 75 80

Ala Asn Tyr Cys Ser Thr His Leu Leu Glu His Ile Thr Thr Asn Glu  
85 90 95

Asp Phe Arg Ala Ala Gly Lys Ser Gly Ser Ala Leu Glu Leu Ser Val  
100 105 110

Glu Asn Val Lys Asn Gly Ile Arg Thr Gly Phe Leu Lys Ile Asp Glu  
115 120 125

Tyr Met Arg Asn Phe Ser Asp Leu Arg Asn Gly Met Asp Arg Ser Gly  
130 135 140

Ser Thr Ala Val Gly Val Met Ile Ser Pro Lys His Ile Tyr Phe Ile  
145 150 155 160

Asn Cys Gly Asp Ser Arg Ala Val Leu Tyr Arg Asn Gly Gln Val Cys  
165 170 175

Phe Ser Thr Gln Asp His Lys Pro Cys Asn Pro Arg Glu Lys Glu Arg  
180 185 190

Ile Gln Asn Ala Gly Gly Ser Val Met Ile Gln Arg Val Asn Gly Ser  
195 200 205

Leu Ala Val Ser Arg Ala Leu Gly Asp Tyr Asp Tyr Lys Cys Val Asp  
210 215 220

Gly Lys Gly Pro Thr Glu Gln Leu Val Ser Pro Glu Pro Glu Val Tyr  
225 230 235 240

Xaa Ile Leu Arg Ala Glu Glu Asp Glu Phe Ile Ile Leu Ala Cys Asp  
245 250 255

Gly Ile Trp Asp Val Met Ser Asn Glu Glu Leu Cys Glu Tyr Val Lys  
260 265 270

Ser Arg Leu Glu Val Ser Asp Asp Leu Glu Asn Val Cys Asn Trp Val  
275 280 285

Val Asp Thr Cys Leu His Lys Gly Ser Arg Asp Asn Met Ser Ile Val  
290 295 300

Leu Val Cys Phe Ser Asn Ala Pro Lys Val Ser Asp Glu Ala Val Lys  
305 310 315 320

Lys Asp Ser Glu Leu Asp Lys His Leu Glu Ser Arg Val Glu Glu Ile  
325 330 335

Met Glu Lys Ser Gly Glu Glu Gly Met Pro Asp Leu Ala His Val Met  
340 345 350

Arg Ile Leu Ser Ala Glu Asn Ile Pro Asn Leu Pro Pro Gly Gly Gly  
355 360 365

Leu Ala Gly Xaa Arg Asn Val Ile Glu Ala Val Tyr Ser Arg Leu Asn  
370 375 380

Pro His Arg Glu Ser Asp Gly Gly Ala Gly Asp Leu Glu Asp Pro Trp  
385 390 395 400

<210> 1255

<211> 155

<212> PRT

<213> Homo sapiens

<400> 1255

Val Ala Arg Ser Ala Pro Pro Asp Gly Ala Val Cys Ala Gly Pro Gly  
1 5 10 15

Ser Arg Arg Thr Glu Met Ala Glu Gln Ser Asp Glu Ala Val Lys Tyr  
20 25 30

Tyr Thr Leu Glu Glu Ile Gln Lys His Asn His Ser Lys Ser Thr Trp  
35 40 45

Leu Ile Leu His His Lys Val Tyr Asp Leu Thr Lys Phe Leu Glu Glu  
50 55 60

His Pro Gly Gly Glu Glu Val Leu Arg Glu Gln Ala Gly Gly Asp Ala  
65 70 75 80

Thr Glu Asn Phe Glu Asp Val Gly His Ser Thr Asp Ala Arg Glu Met  
85 90 95

Ser Lys Thr Phe Ile Ile Gly Glu Leu His Pro Asp Asp Arg Pro Lys  
100 105 110

Leu Asn Lys Pro Pro Glu Thr Leu Ile Thr Thr Ile Asp Ser Ser Ser  
115 120 125

Ser Trp Trp Thr Asn Trp Val Ile Pro Ala Ile Ser Ala Val Ala Val  
130 135 140

Ala Leu Met Tyr Arg Leu Tyr Met Ala Glu Asp  
145 150 155

<210> 1256

<211> 378

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (184)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1256

Gln Ala Phe Ala Lys Ser Tyr Leu Gly Asp Thr Ile Glu Gly Thr Pro  
1 5 10 15

Ala Gly Thr Gly Pro Glu Phe Pro Gly Arg Pro Thr Arg Pro Arg Arg  
20 25 30

Lys Pro Thr Ala Ala Trp Ser Ala Lys Lys Ser Phe Gln Val Ser Arg  
35 40 45

Thr Gly Leu Phe Leu Ser Lys Ser Gly Ser Thr Leu Thr Met Trp Leu  
50 55 60

Tyr Leu Ala Ala Phe Val Gly Leu Tyr Tyr Leu Leu His Trp Tyr Arg  
65 70 75 80

Glu Arg Gln Val Val Ser His Leu Gln Asp Lys Tyr Val Phe Ile Thr  
85 90 95

Gly Cys Asp Ser Gly Phe Gly Asn Leu Leu Ala Arg Gln Leu Asp Ala  
100 105 110

Arg Gly Leu Xaa Val Leu Ala Ala Cys Leu Thr Glu Lys Gly Ala Glu  
115 120 125

Gln Leu Arg Gly Gln Thr Ser Asp Arg Leu Glu Thr Val Thr Leu Asp  
130 135 140

Val Thr Lys Met Glu Ser Ile Ala Ala Ala Thr Gln Trp Val Lys Glu  
145 150 155 160

His Val Gly Asp Arg Gly Leu Trp Gly Leu Val Asn Asn Ala Gly Ile  
165 170 175

Leu Thr Pro Ile Thr Leu Cys Xaa Trp Leu Asn Thr Glu Asp Ser Met  
180 185 190

Asn Met Leu Lys Val Asn Leu Ile Gly Val Ile Gln Val Thr Leu Ser  
195 200 205

Met Leu Pro Leu Val Arg Arg Ala Arg Gly Arg Ile Val Asn Val Ser  
210 215 220

Ser Ile Leu Gly Arg Val Ala Phe Phe Val Gly Gly Tyr Cys Val Ser  
225 230 235 240

Lys Tyr Gly Val Glu Ala Phe Ser Asp Ile Leu Arg Arg Glu Ile Gln  
245 250 255

His Phe Gly Val Lys Ile Ser Ile Val Glu Pro Gly Tyr Phe Arg Thr  
260 265 270

Gly Met Thr Asn Met Thr Gln Ser Leu Glu Arg Met Lys Gln Ser Trp  
275 280 285

Lys Glu Ala Pro Lys His Ile Lys Glu Thr Tyr Gly Gln Gln Tyr Phe  
290 295 300

Asp Ala Leu Tyr Asn Ile Met Lys Glu Gly Leu Leu Asn Cys Ser Thr  
305 310 315 320

Asn Leu Asn Leu Val Thr Asp Cys Met Glu His Ala Leu Thr Ser Val  
325 330 335

His Pro Arg Thr Arg Tyr Ser Ala Gly Trp Asp Ala Lys Phe Phe Phe  
340 345 350

Ile Pro Leu Ser Tyr Leu Pro Thr Ser Leu Ala Asp Tyr Ile Leu Thr  
355 360 365

Arg Ser Trp Pro Lys Pro Ala Gln Ala Val  
370 375

&lt;210&gt; 1257

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (63)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1257

Lys Pro Gln Pro Leu Ala Tyr Ser Ser Phe Asn Thr Arg Asp Leu Trp  
1 5 10 15

Leu Ile Trp Gly Arg Lys Thr Leu Lys Val Ile Ser Leu Gly Gln Arg  
20 25 30

Pro Tyr Cys Thr Arg Gly Lys Lys Tyr Ile Leu His Leu Leu Leu Leu  
35 40 45

Gln Leu Cys Leu Lys Phe Ile Cys Leu Val Ile Leu Ser Thr Xaa Thr  
50 55 60

Asn Phe Leu Val Tyr Phe Lys His Leu Val Gly  
65 70 75

&lt;210&gt; 1258

&lt;211&gt; 261

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1258

Pro Ser Gly Ile Pro Gly Ser Thr His Ala Ser Glu Arg Lys Leu Pro  
1 5 10 15

Glu Glu His Ala Arg Phe Tyr Ser Ala Glu Ile Ser Leu Ala Leu Asn  
20 25 30

Tyr Leu His Glu Arg Gly Ile Ile Tyr Arg Asp Leu Lys Leu Asp Asn  
35 40 45

Val Leu Leu Asp Ser Glu Gly His Ile Lys Leu Thr Asp Tyr Gly Met  
50 55 60

Cys Lys Glu Gly Leu Arg Pro Gly Asp Thr Thr Ser Thr Phe Cys Gly  
65 70 75 80

Thr Pro Asn Tyr Ile Ala Pro Glu Ile Leu Arg Gly Glu Asp Tyr Gly  
85 90 95

Phe Ser Val Asp Trp Trp Ala Leu Gly Val Leu Met Phe Glu Met Met  
100 105 110

Ala Gly Arg Ser Pro Phe Asp Ile Val Gly Ser Ser Asp Asn Pro Asp  
115 120 125

Gln Asn Thr Glu Asp Tyr Leu Phe Gln Val Ile Leu Glu Lys Gln Ile  
130 135 140

Arg Ile Pro Arg Ser Leu Ser Val Lys Ala Ala Ser Val Leu Lys Ser  
145 150 155 160

Phe Leu Asn Lys Asp Pro Lys Glu Arg Leu Gly Cys His Pro Gln Thr  
165 170 175

Gly Phe Ala Asp Ile Gln Gly His Pro Phe Phe Arg Asn Val Asp Trp  
180 185 190

Asp Met Met Glu Gln Lys Gln Val Val Pro Pro Phe Lys Pro Asn Ile  
195 200 205

Ser Gly Glu Phe Gly Leu Asp Asn Phe Asp Ser Gln Phe Thr Asn Glu  
210 215 220

Pro Val Gln Leu Thr Pro Asp Asp Asp Asp Ile Val Arg Lys Ile Asp  
225 230 235 240

Gln Ser Glu Phe Glu Gly Phe Glu Tyr Ile Asn Pro Leu Leu Met Ser  
245 250 255

Ala Glu Glu Cys Val  
260

<210> 1259

<211> 115

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (114)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1259

Phe Gly Xaa Gly Ala Leu Leu Lys Leu Ile Phe Pro Asp Gly Ala Phe  
1 5 10 15

Glu Ser Glu Asn Arg Ala Leu Ile Asn Val Gln Met Leu Asn Asn Ser  
20 25 30

Gly Phe Ala Arg Gly Ile Ile Glu Glu Phe Gln Asn Asn Asn Asp Leu  
35 40 45

Glu Leu Gln Gln Lys Cys Ile Asn Val Leu Ser Thr Tyr Ala Met Ile  
50 55 60

Gln Gly Gln Ile Asp Ala Asn Lys Glu Ile Gly Gln Phe Phe Ile Gln  
65 70 75 80

Thr Leu Thr Gln Leu Asn Val Arg Pro Glu Ile Leu Ile Glu Met Thr  
85 90 95

Asn Ser Leu Phe Gln Phe Thr Gly Met Pro Leu Thr Ala Ile Met Glu  
100 105 110

Pro Xaa Leu  
115

<210> 1260

<211> 296

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (124)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (247)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (270)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (282)



<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1260

Arg Pro Thr Arg Pro Arg His Ala Trp Ala Glu Leu Arg Val Val Ala  
1 5 10 15

Met Ala Ala Ser Gly Ala Val Glu Pro Gly Pro Pro Gly Ala Ala Val  
20 25 30

Ala Pro Ser Pro Ala Pro Ala Pro Pro Pro Ala Pro Asp His Leu Phe  
35 40 45

Arg Pro Ile Ser Ala Glu Asp Glu Glu Gln Xaa Pro Thr Glu Ile Glu  
50 55 60

Ser Leu Cys Met Asn Cys Tyr Cys Asn Gly Met Thr Arg Leu Leu Leu  
65 70 75 80

Thr Lys Ile Pro Phe Phe Arg Glu Ile Ile Val Ser Ser Phe Ser Cys  
85 90 95

Glu His Cys Gly Trp Asn Asn Thr Glu Ile Gln Ser Ala Gly Arg Ile  
100 105 110

Gln Asp Gln Gly Val Arg Tyr Thr Leu Ser Val Xaa Ala Leu Glu Asp  
115 120 125

Met Asn Arg Glu Val Val Lys Thr Asp Ser Ala Ala Thr Arg Ile Pro  
130 135 140

Glu Leu Asp Phe Glu Ile Pro Ala Phe Ser Gln Lys Gly Ala Leu Thr  
145 150 155 160

Thr Val Glu Gly Leu Ile Thr Arg Ala Ile Ser Gly Leu Glu Gln Asp  
165 170 175

Gln Pro Ala Arg Arg Ala Asn Lys Asp Ala Thr Ala Glu Arg Ile Asp  
180 185 190

Glu Phe Ile Val Lys Leu Lys Glu Leu Lys Gln Val Ala Ser Pro Phe  
195 200 205

Thr Leu Ile Ile Asp Asp Pro Ser Gly Asn Ser Phe Val Glu Asn Pro  
210 215 220

His Ala Pro Gln Lys Asp Asp Ala Leu Val Ile Thr His Tyr Asn Arg  
225 230 235 240

Thr Arg Gln Gln Glu Glu Xaa Leu Gly Leu Gln Glu Glu Ala Pro Ala  
245 250 255

Glu Lys Pro Glu Glu Glu Asp Leu Arg Asn Glu Val Leu Xaa Phe Ser  
260 265 270

Thr Asn Cys Pro Glu Cys Asn Val Pro Xaa Gln Thr Asn Met Lys Leu  
275 280 285

Met Val Val Leu Phe Ala Trp Lys  
290 295

<210> 1261

<211> 53

<212> PRT

<213> Homo sapiens

<400> 1261

Gly Gly Arg Gly Gly Arg Ile Thr Gly Ala Arg Glu Phe Lys Thr Ser  
1 5 10 15

Leu Gly Asn Ile Val Lys Pro Ser Pro Gln Ile Ile Phe Lys Lys Leu  
20 25 30

Ala Arg His Gly Gly Ala Ala Cys Ser Pro Ser Tyr Ser Gly Gly Leu  
35 40 45

Gly Gly Arg Ile Ala  
50

<210> 1262

<211> 200

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (4)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1262

Asp Ser His Xaa Thr Xaa Xaa Pro Val Asp Pro Arg Val Arg Glu Ala  
1 5 10 15

Gly Ile Pro Glu Phe Tyr Asp Tyr Asp Val Ala Leu Ile Lys Leu Lys  
20 25 30

Asn Lys Leu Lys Tyr Gly Gln Thr Ile Arg Pro Ile Cys Leu Pro Cys  
35 40 45

Thr Glu Gly Thr Thr Arg Ala Leu Arg Leu Pro Pro Thr Thr Thr Cys  
50 55 60

Gln Gln Gln Lys Glu Glu Leu Leu Pro Ala Gln Asp Ile Lys Ala Leu  
65 70 75 80

Phe Val Ser Glu Glu Glu Lys Lys Leu Thr Arg Lys Glu Val Tyr Ile  
85 90 95

Lys Asn Gly Asp Lys Lys Gly Ser Cys Glu Arg Asp Ala Gln Tyr Ala  
100 105 110

Pro Gly Tyr Asp Lys Val Lys Asp Ile Ser Glu Val Val Thr Pro Arg  
115 120 125

Phe Leu Cys Thr Gly Gly Val Ser Pro Tyr Ala Asp Pro Asn Thr Cys  
130 135 140

Arg Gly Asp Ser Gly Gly Pro Leu Ile Val His Lys Arg Ser Arg Phe  
145 150 155 160

Ile Gln Val Gly Val Ile Ser Trp Gly Val Val Asp Val Cys Lys Asn  
165 170 175

Gln Lys Arg Gln Lys Gln Val Pro Val Thr Pro Glu Thr Phe Thr Ser  
180 185 190

Thr Ser Phe Lys Cys Cys Pro Gly  
195 200

&lt;210&gt; 1263

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (44)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (81)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (82)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (90)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (94)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1263  
Cys Ala Arg Pro His Cys His Gly Pro Gln Ile Tyr Ser Ser Lys Gln  
1 5 10 15  
Ser Ser His Gly Thr Phe Pro Gln Gly Ala Val Ser Pro Val Glu Glu  
20 25 30  
Ser Asp Met Thr His His Thr Asp Arg Lys Ile Xaa Thr Asn Tyr Glu  
35 40 45  
Lys Asn Ala Glu Gly Arg Lys Asn Ile Gly Gly Pro Ala Ala Glu Ser  
50 55 60  
Arg Leu Thr Cys Arg Asp Leu Cys Trp Pro Gly Pro Val Leu Gly Ser  
65 70 75 80  
Xaa Xaa His Gly Ile Lys Ser Asn Lys Xaa Thr Val Cys Xaa His Leu  
85 90 95  
Thr Val Trp Glu Lys Glu Gln Ala Pro Phe Thr Gly Phe Tyr  
100 105 110

<210> 1264  
<211> 151  
<212> PRT  
<213> Homo sapiens

<400> 1264

Phe Trp Pro Cys Arg Ala Phe Gly Ile Pro Ile Arg Val Tyr Thr His  
1 5 10 15

Glu Val Val Thr Leu Trp Tyr Arg Ser Pro Glu Val Leu Leu Gly Ser  
20 25 30

Ala Arg Tyr Ser Thr Pro Val Asp Ile Trp Ser Ile Gly Thr Ile Phe  
35 40 45

Ala Glu Leu Ala Thr Lys Lys Pro Leu Phe His Gly Asp Ser Glu Ile  
50 55 60

Asp Gln Leu Phe Arg Ile Phe Arg Ala Leu Gly Thr Pro Asn Asn Glu  
65 70 75 80

Val Trp Pro Glu Val Glu Ser Leu Gln Asp Tyr Lys Asn Thr Phe Pro  
85 90 95

Lys Trp Lys Pro Gly Ser Leu Ala Ser His Val Lys Asn Leu Asp Glu  
100 105 110

Asn Gly Leu Asp Leu Leu Ser Lys Met Leu Ile Tyr Asp Pro Ala Lys  
115 120 125

Arg Ile Ser Gly Lys Met Ala Leu Asn His Pro Tyr Phe Asn Asp Leu  
130 135 140

Asp Asn Gln Ile Lys Lys Met  
145 150

<210> 1265

<211> 73

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1265

Pro Glu Trp Trp Pro Asp Ser Arg Ser Pro Ser Ser Pro Arg Thr Pro  
1 5 10 15

Arg Ser Ser Ser Ser Xaa Pro Tyr Ser Pro Thr His Phe Pro Pro Pro  
20 25 30

Leu Leu Gln Ala Gly Ser Val Phe Leu Leu Val Pro Glu Ala Leu Cys  
35 40 45

Ser Ser Pro Pro Ser Glu Pro Pro Tyr Ala Gly Ser Cys Lys Ala Trp  
 50 55 60

Leu Ser Ala Asp Gly Ser Ser Gln Asp  
 65 70

<210> 1266

<211> 319

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (305)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1266

Trp Gln Ser Ile Leu Pro Phe Ile Gln His Lys Arg Ser Trp Arg Gln  
 1 5 10 15

Ser Arg Thr Trp Cys Ser His Thr Glu Arg Ala Leu Lys Ala Val Ser  
 20 25 30

Asp Trp Ile Asp Glu Gln Glu Lys Gly Ser Ser Glu Gln Ala Glu Ser  
 35 40 45

Asp Asn Met Asp Val Pro Pro Glu Asp Asp Ser Lys Glu Gly Ala Gly  
 50 55 60

Glu Gln Lys Thr Glu His Met Thr Arg Thr Leu Arg Gly Val Met Arg  
 65 70 75 80

Val Gly Leu Val Ala Lys Gly Leu Leu Leu Lys Gly Asp Leu Asp Leu  
 85 90 95

Glu Leu Val Leu Leu Cys Lys Glu Lys Pro Thr Thr Ala Leu Leu Asp  
 100 105 110

Lys Val Ala Asp Asn Leu Ala Ile Gln Leu Ala Ala Val Thr Glu Asp  
 115 120 125

Lys Tyr Glu Ile Leu Gln Ser Val Asp Asp Ala Ala Ile Val Ile Lys  
 130 135 140

Asn Thr Lys Glu Pro Pro Leu Ser Leu Thr Ile His Leu Thr Ser Pro  
 145 150 155 160

Val Val Arg Glu Glu Met Glu Lys Val Leu Ala Gly Glu Thr Leu Ser

165 170 175  
Val Asn Asp Pro Pro Asp Val Leu Asp Arg Gln Lys Cys Leu Ala Ala  
180 185 190  
Leu Ala Ser Leu Arg His Ala Lys Trp Phe Gln Ala Arg Ala Asn Gly  
195 200 205  
Leu Lys Ser Cys Val Ile Val Ile Arg Val Leu Arg Asp Leu Cys Thr  
210 215 220  
Arg Val Pro Thr Trp Gly Pro Leu Arg Gly Trp Pro Leu Glu Leu Leu  
225 230 235 240  
Cys Glu Lys Ser Ile Gly Thr Ala Asn Arg Pro Met Gly Ala Gly Glu  
245 250 255  
Ala Leu Arg Arg Val Leu Glu Cys Leu Ala Ser Gly Ile Val Met Pro  
260 265 270  
Asp Gly Ser Gly Ile Tyr Asp Pro Cys Glu Lys Glu Ala Thr Asp Ala  
275 280 285  
Ile Gly His Leu Asp Arg Gln Gln Arg Glu Asp Ile Thr Gln Ser Ala  
290 295 300  
Xaa Pro His Cys Gly Ser Leu Pro Ser Ala Ser Ser Ile Lys Ser  
305 310 315

&lt;210&gt; 1267

&lt;211&gt; 119

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1267

Phe Gly Arg Val Arg Pro Gln Arg Gln Ala Val Thr Leu Leu Leu Leu  
1 5 10 15  
Pro Leu Ala Met Ser Thr Ser Thr Ser Cys Pro Ile Pro Gly Gly Arg  
20 25 30  
Asp Gln Leu Pro Asp Cys Tyr Ser Thr Thr Pro Gly Gly Thr Leu Tyr  
35 40 45  
Ala Thr Thr Pro Gly Gly Thr Arg Ile Ile Tyr Asp Arg Lys Phe Leu  
50 55 60  
Leu Glu Cys Lys Asn Ser Pro Ile Ala Arg Thr Pro Pro Cys Cys Leu  
65 70 75 80

Pro Gln Ile Pro Gly Val Thr Thr Pro Pro Thr Ala Pro Leu Ser Lys  
85 90 95

Leu Glu Glu Leu Lys Glu Gln Glu Thr Glu Glu Glu Ile Pro Asp Asp  
100 105 110

Ala Gln Phe Glu Met Asp Ile  
115

<210> 1268

<211> 329

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (307)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (308)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (314)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (317)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (323)

<223> Xaa equals any of the naturally occurring L-amino acids



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (327)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (328)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (329)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1268

Arg Cys Xaa Gly Ser Ala Arg Ile Glu Val Cys Ser Ala Phe Gly Ser  
1 5 10 15

Met Ser Ala Ala Val Thr Ala Gly Lys Leu Ala Arg Ala Pro Ala Asp  
20 25 30

Pro Gly Lys Ala Gly Val Pro Gly Val Ala Ala Pro Gly Ala Pro Ala  
35 40 45

Ala Ala Pro Pro Ala Lys Glu Ile Pro Glu Xaa Leu Val Asp Pro Arg  
50 55 60

Ser Arg Arg Arg Tyr Val Arg Gly Arg Phe Leu Gly Lys Gly Gly Phe  
65 70 75 80

Ala Lys Cys Phe Glu Ile Ser Asp Ala Asp Thr Lys Glu Val Phe Ala  
85 90 95

Gly Lys Ile Val Pro Lys Ser Leu Leu Leu Lys Pro His Gln Arg Glu  
100 105 110

Lys Met Ser Met Glu Ile Ser Ile His Arg Ser Leu Ala His Gln His  
115 120 125

Val Val Gly Phe His Gly Phe Phe Glu Asp Asn Asp Phe Val Phe Val  
130 135 140

Val Leu Glu Leu Cys Arg Arg Arg Ser Leu Leu Glu Leu His Lys Arg  
145 150 155 160

Arg Lys Ala Leu Thr Glu Pro Glu Ala Arg Tyr Tyr Leu Arg Gln Ile  
165 170 175

Val Leu Gly Cys Gln Tyr Leu His Arg Asn Arg Val Ile His Arg Asp

180	185	190
Leu Lys Leu Gly Asn Leu Phe Leu Asn Glu Asp Leu Glu Val Lys Ile		
195	200	205
Gly Asp Phe Gly Leu Ala Thr Lys Val Glu Tyr Asp Gly Glu Arg Lys		
210	215	220
Lys Thr Leu Cys Gly Thr Pro Asn Tyr Ile Ala Pro Glu Val Leu Ser		
225	230	235
Lys Lys Gly His Ser Phe Glu Val Asp Val Trp Ser Ile Gly Cys Ile		
245	250	255
Met Tyr Thr Leu Leu Val Gly Lys Pro Pro Phe Glu Thr Ser Cys Leu		
260	265	270
Lys Glu Thr Tyr Leu Arg Ile Lys Lys Asn Glu Tyr Ser Ile Pro Lys		
275	280	285
His Ile Asn Pro Val Ala Ala Ser Leu Ile Gln Lys Met Leu Gln Thr		
290	295	300
Asp Pro Xaa Xaa Arg Gln Pro Leu Thr Xaa Cys Leu Xaa Thr Ser Asp		
305	310	315
Leu Ser Xaa Gln Lys Lys Xaa Xaa Xaa		
325		

&lt;210&gt; 1269

&lt;211&gt; 144

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1269

Leu Gln Thr Asn Ser Phe Pro Val Leu Leu Thr Gln Gly Leu Glu Ser
1 5 10 15
Asn Asp Phe Glu Met Leu Asn Lys Val Leu Gln Thr Arg Asn Val Asn
20 25 30
Leu Ile Lys Lys Thr Val Leu Arg Met Pro Leu His Thr Ile Ile Pro
35 40 45
Leu Leu Gln Glu Leu Thr Lys Arg Leu Gln Gly His Pro Asn Ser Ala
50 55 60
Val Leu Met Val Gln Trp Leu Lys Cys Val Leu Thr Val His Ala Ser
65 70 75 80

Tyr Leu Ser Thr Leu Pro Asp Leu Val Pro Gln Leu Gly Thr Leu Tyr  
85 90 95

Gln Leu Met Glu Ser Arg Val Lys Thr Phe Gln Lys Leu Ser His Leu  
100 105 110

His Gly Lys Leu Ile Leu Leu Ile Thr Gln Val Thr Ala Ser Glu Lys  
115 120 125

Thr Lys Gly Ala Thr Ser Pro Gly Gln Lys Ala Lys Leu Val Tyr Glu  
130 135 140

<210> 1270

<211> 84

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1270

Asn Ser Ala Arg Ala Thr Leu Asp Glu Ala Thr Pro Thr Leu Thr Asn  
1 5 10 15

Gln Ser Pro Thr Leu Thr Leu Gln Ser Thr Asn Thr His Thr Gln Ser  
20 25 30

Ser Ser Ser Ser Ser Xaa Gly Gly Leu Phe Arg Ser Arg Pro Ala His  
35 40 45

Ser Leu Pro Pro Gly Glu Asp Gly Arg Val Glu Pro Tyr Val Asp Phe  
50 55 60

Ala Glu Phe Tyr Arg Leu Trp Ser Val Asp His Gly Glu Gln Ser Val  
65 70 75 80

Val Thr Ala Pro

<210> 1271

<211> 123

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (28)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (58)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (74)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (82)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1271

Leu Gln Ala Ala Gly Gly His Leu Thr Ala Ala Pro Gly Ala Val His  
1 5 10 15

Gly Ala Ala Ala Val Arg Phe Gln Ala Ala Ala Xaa Xaa Gln Glu Gly  
20 25 30

Val Glu Ala Ala Pro Arg Pro Val Ser Pro Gln Ala Ser Leu Glu Glu  
35 40 45

Arg Ala Val Ser Arg Asn Pro Leu Cys Xaa Leu Cys Leu Glu Glu Arg  
50 55 60

Arg His Pro Thr Ala Thr Pro Cys Gly Xaa Leu Phe Cys Trp Glu Cys  
65 70 75 80

Ile Xaa Ala Trp Cys Ser Ser Lys Ala Glu Cys Pro Leu Leu Pro Gly  
85 90 95

Glu Ser Ser Leu Pro Arg Lys Leu Ile Tyr Leu Arg His Tyr Arg Leu  
100 105 110

Asn Arg Arg Pro Gly Trp Ala Leu Asp Thr Asn

115

120

&lt;210&gt; 1272

&lt;211&gt; 86

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1272

Gly Thr Glu Lys Arg Glu Lys Arg Leu Gly Ser His His Gly Glu Ala  
1 5 10 15

Gly Val Ser Gln Leu Thr Ser Ala Gly Asp Ser Gly Val Leu Val Leu  
20 25 30

Pro Leu Ser Leu Pro Pro Arg Ser Ser Leu Ala Gly Leu Ala Glu Ala  
35 40 45

Leu Leu Met Asn Leu Thr Glu Gly Pro Leu Ala Met Ala Glu Met Asp  
50 55 60

Pro Thr Gln Gly Arg Val Val Phe Glu Asp Val Ala Ile Tyr Phe Ser  
65 70 75 80

Arg Arg Ser Gly Gly Thr  
85

&lt;210&gt; 1273

&lt;211&gt; 72

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (60)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (69)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (72)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1273

Ile Glu Pro Leu Leu Arg Leu Leu Arg Ile Asn His Leu Leu Asn Arg  
1 5 10 15  
Ser Ala Tyr Gln Glu Gly Arg Glu Gly Ser Gln Lys Glu Met Leu Ala  
20 25 30  
Pro Gly Pro Arg Ser Gln Gly Leu Leu Thr Pro Gly Val Asp Phe Phe  
35 40 45  
Ser Glu Val Ala Pro Tyr Lys Gly Asn Met Ala Xaa Ala Gly Thr Ser  
50 55 60  
Thr Gly Arg Leu Xaa Ser Gly Xaa  
65 70

<210> 1274  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 1274  
His Leu Thr Tyr Ser Trp His Leu Val Gly Thr Glu Ser Met Asn Arg  
1 5 10 15  
Ser Tyr Trp Leu Pro Ile Gln Arg Leu Val Gly Val Val Ile Pro Ile  
20 25 30  
Ala Glu Ser Gln Leu Val Asn Gln Gln Gly Phe His Leu Cys Cys Ser  
35 40 45  
Pro Pro Pro Ser Pro Leu Glu Gly  
50 55

<210> 1275  
<211> 161  
<212> PRT  
<213> Homo sapiens

<400> 1275  
Leu Pro Gly Cys Arg Asn Ser Ala Gln Asn Cys Arg Leu Ile Phe Ser  
1 5 10 15  
Lys Ala Lys Pro Ser Val Leu Ala Leu Cys Leu Leu Asn Leu Glu Val  
20 25 30  
Glu Thr Leu Lys Ser Val Glu Leu Leu Glu Ile Leu Leu Leu Val Lys  
35 40 45

Lys His Ser Lys Ile Asn Asp Thr Glu Phe Phe Tyr Trp Arg Glu Leu  
50 55 60

Val Ser Lys Cys Leu Ala Glu Tyr Ser Ser Pro Glu Cys Cys Lys Pro  
65 70 75 80

Asp Leu Lys Lys Leu Val Trp Ile Val Ser Arg Arg Thr Ala Gln Asn  
85 90 95

Leu His Asn Ser Tyr Tyr Ser Val Pro Glu Leu Pro Thr Ile Pro Glu  
100 105 110

Gly Gly Cys Phe Asp Glu Ser Glu Ser Glu Asp Ser Cys Glu Asp Met  
115 120 125

Ser Cys Gly Glu Glu Ser Leu Ser Ser Ser Pro Pro Ser Asp Gln Glu  
130 135 140

Cys Thr Phe Phe Phe Asn Phe Lys Val Ala Gln Thr Leu Cys Phe Pro  
145 150 155 160

Ser

<210> 1276

<211> 49

<212> PRT

<213> Homo sapiens

<400> 1276

Asn Asn Lys Ser Leu Leu Lys Lys Tyr Ile Phe Phe Leu Leu Arg Ala  
1 5 10 15

Leu Leu Ala Ile Gly Asn Leu Lys Ile Ser Ser Pro Lys Gln Gly Pro  
20 25 30

Tyr Gln Ile Phe Leu Asp Pro Pro Met Leu Ser Val Leu Ala Thr His  
35 40 45

Cys

<210> 1277

<211> 89

<212> PRT

<213> Homo sapiens

&lt;400&gt; 1277

Leu Asn Leu Leu Met Ser Thr Ile Leu Phe Leu Gln Asp Leu Pro Gly  
 1 5 10 15

Leu Lys Arg Asn Tyr Phe Pro Gly Pro Asn Thr Leu Val Phe Tyr Gln  
 20 25 30

His Leu Ile Asp Leu Gly Lys Ala Glu Cys Leu Thr Pro Ala Cys Gly  
 35 40 45

Ile Leu Leu Trp Gln Ala Glu Gln Thr Asn Thr Asp Phe Asn Ile Gln  
 50 55 60

Thr Lys Ser Lys Gly Met Glu Lys Asp Thr Pro Ser Gln Asn Lys Glu  
 65 70 75 80

Ser Ser Tyr Val Asn Leu Arg Gln Ser  
 85

&lt;210&gt; 1278

&lt;211&gt; 199

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1278

Pro Gln Pro Leu Pro Pro Pro Thr Ser Met Ala Arg His Val Phe Leu  
 1 5 10 15

Thr Gly Pro Pro Gly Val Gly Lys Thr Thr Leu Ile His Lys Ala Ser  
 20 25 30

Glu Val Leu Lys Ser Ser Gly Val Pro Val Asp Gly Phe Tyr Thr Glu  
 35 40 45

Glu Val Arg Gln Gly Gly Arg Arg Ile Gly Phe Asp Val Val Thr Leu  
 50 55 60

Ser Gly Thr Arg Gly Pro Leu Ser Arg Val Gly Leu Glu Pro Pro Pro  
 65 70 75 80

Gly Lys Arg Glu Cys Arg Val Gly Gln Tyr Val Val Asp Leu Thr Ser  
 85 90 95

Phe Glu Gln Leu Ala Leu Pro Val Leu Arg Asn Ala Asp Cys Ser Ser  
 100 105 110

Gly Pro Gly Gln Arg Val Cys Val Ile Asp Glu Ile Gly Lys Met Glu  
 115 120 125



Leu Phe Ser Gln Leu Phe Ile Gln Ala Val Arg Gln Thr Leu Ser Thr  
130 135 140

Pro Gly Thr Ile Ile Leu Gly Thr Ile Pro Val Pro Lys Gly Lys Pro  
145 150 155 160

Leu Ala Leu Val Glu Glu Ile Arg Asn Arg Lys Asp Val Lys Val Phe  
165 170 175

Asn Val Thr Lys Glu Asn Arg Asn His Leu Leu Pro Asp Ile Val Thr  
180 185 190

Cys Val Gln Ser Ser Arg Lys  
195

<210> 1279

<211> 183

<212> PRT

<213> Homo sapiens

<400> 1279

Phe Gly Thr Glu Gly Ala Met Ala Val Ala Asn Ser Ser Pro Val Asn  
1 5 10 15

Pro Val Val Phe Phe Asp Val Ser Ile Gly Gly Gln Glu Val Gly Arg  
20 25 30

Met Lys Ile Glu Leu Phe Ala Asp Val Val Pro Lys Thr Ala Glu Asn  
35 40 45

Phe Arg Gln Phe Cys Thr Gly Glu Phe Arg Lys Asp Gly Val Pro Ile  
50 55 60

Gly Tyr Lys Gly Ser Thr Phe His Arg Val Ile Lys Asp Phe Met Ile  
65 70 75 80

Gln Gly Gly Asp Phe Val Asn Gly Asp Gly Thr Gly Val Ala Ser Ile  
85 90 95

Tyr Arg Gly Pro Phe Ala Asp Glu Asn Phe Lys Leu Arg His Ser Ala  
100 105 110

Pro Gly Leu Leu Ser Met Ala Asn Ser Gly Pro Ser Thr Asn Gly Cys  
115 120 125

Gln Phe Phe Ile Thr Cys Ser Lys Cys Asp Trp Leu Asp Gly Lys His  
130 135 140

Val Val Phe Gly Lys Ile Ile Asp Gly Leu Leu Val Met Arg Lys Ile  
145 150 155 160

Glu Asn Val Pro Thr Gly Pro Asn Asn Lys Pro Lys Leu Pro Val Val  
165 170 175

Ile Ser Gln Cys Gly Glu Met  
180

<210> 1280

<211> 62

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1280

Asn Phe Cys Trp Asn Ile Ile Asn Gly Ser Ile Pro Lys Asp Thr Trp  
1 5 10 15

Xaa Leu Leu Leu Asp Phe Ser Thr Met Ile Ala Asp Asp Met Ser Asn  
20 25 30

Tyr Asp Glu Glu Gly Ala Trp Pro Val Leu Ile Asp Asp Phe Val Glu  
35 40 45

Phe Ala Arg Pro Gln Ile Ala Gly Thr Lys Ser Thr Thr Val  
50 55 60

<210> 1281

<211> 38

<212> PRT

<213> Homo sapiens

<400> 1281

Cys Ser Phe Ile Ile Leu Ile Ile Leu Gly Pro Leu Glu Phe Ala Glu  
1 5 10 15

Ser Thr Leu Pro Val Leu Tyr Lys Trp Asn Asn Lys Ala Trp Met Thr  
20 25 30

Ala Cys Leu Phe Thr Ser  
35

1087

&lt;210&gt; 1282

&lt;211&gt; 515

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1282

Ser Ser Phe Phe Ser Phe Leu Ala Ala Ala Pro Gly Ser Ser Arg Arg  
1 5 10 15

Ala Ala Pro Val Leu Arg Pro Glu Met Asn Pro Ala Ala Glu Ala Glu  
20 25 30

Phe Asn Ile Leu Leu Ala Thr Asp Ser Tyr Lys Val Thr His Tyr Lys  
35 40 45

Gln Tyr Pro Pro Asn Thr Ser Lys Val Tyr Ser Tyr Phe Glu Cys Arg  
50 55 60

Glu Lys Lys Thr Glu Asn Ser Lys Leu Arg Lys Val Lys Tyr Glu Glu  
65 70 75 80

Thr Val Phe Tyr Gly Leu Gln Tyr Ile Leu Asn Lys Tyr Leu Lys Gly  
85 90 95

Lys Val Val Thr Lys Glu Lys Ile Gln Glu Ala Lys Asp Val Tyr Lys  
100 105 110

Glu His Phe Gln Asp Asp Val Phe Asn Glu Lys Gly Trp Asn Tyr Ile  
115 120 125

Leu Glu Lys Tyr Asp Gly His Leu Pro Ile Glu Ile Lys Ala Val Pro  
130 135 140

Glu Gly Phe Val Ile Pro Arg Gly Asn Val Leu Phe Thr Val Glu Asn  
145 150 155 160

Thr Asp Pro Glu Cys Tyr Trp Leu Thr Asn Trp Ile Glu Thr Ile Leu  
165 170 175

Val Gln Ser Trp Tyr Pro Ile Thr Val Ala Thr Asn Ser Arg Glu Gln  
180 185 190

Lys Lys Ile Leu Ala Lys Tyr Leu Leu Glu Thr Ser Gly Asn Leu Asp  
195 200 205

Gly Leu Glu Tyr Lys Leu His Asp Phe Gly Tyr Arg Gly Val Ser Ser  
210 215 220

Gln Glu Thr Ala Gly Ile Gly Ala Ser Ala His Leu Val Asn Phe Lys

225		230		235		240
Gly Thr Asp Thr Val Ala Gly Leu Ala Leu Ile Lys Lys Tyr Tyr Gly						
	245		250		255	
Thr Lys Asp Pro Val Pro Gly Tyr Ser Val Pro Ala Ala Glu His Ser						
	260		265		270	
Thr Ile Thr Ala Trp Gly Lys Asp His Glu Lys Asp Ala Phe Glu His						
	275		280		285	
Ile Val Thr Gln Phe Ser Ser Val Pro Val Ser Val Val Ser Asp Ser						
	290		295		300	
Tyr Asp Ile Tyr Asn Ala Cys Glu Lys Ile Trp Gly Glu Asp Leu Arg						
305		310		315		320
His Leu Ile Val Ser Arg Ser Thr Gln Ala Pro Leu Ile Ile Arg Pro						
	325		330		335	
Asp Ser Gly Asn Pro Leu Asp Thr Val Leu Lys Val Leu Glu Ile Leu						
	340		345		350	
Gly Lys Lys Phe Pro Val Thr Glu Asn Ser Lys Gly Tyr Lys Leu Leu						
	355		360		365	
Pro Pro Tyr Leu Arg Val Ile Gln Gly Asp Gly Val Asp Ile Asn Thr						
	370		375		380	
Leu Gln Glu Ile Val Glu Gly Met Lys Gln Lys Met Trp Ser Ile Glu						
385		390		395		400
Asn Ile Ala Phe Gly Ser Gly Gly Gly Leu Leu Gln Lys Leu Thr Arg						
	405		410		415	
Asp Leu Leu Asn Cys Ser Phe Lys Cys Ser Tyr Val Val Thr Asn Gly						
	420		425		430	
Leu Gly Ile Asn Val Phe Lys Asp Pro Val Ala Asp Pro Asn Lys Arg						
	435		440		445	
Ser Lys Lys Gly Arg Leu Ser Leu His Arg Thr Pro Ala Gly Asn Phe						
	450		455		460	
Val Thr Leu Glu Glu Gly Lys Gly Asp Leu Glu Glu Tyr Gly Gln Asp						
465		470		475		480
Leu Leu His Thr Val Phe Lys Asn Gly Lys Val Thr Lys Ser Tyr Ser						
	485		490		495	
Phe Asp Glu Ile Arg Lys Asn Ala Gln Leu Asn Ile Glu Leu Glu Ala						

500

505

510

Ala His His  
515

<210> 1283  
<211> 88  
<212> PRT  
<213> Homo sapiens

<400> 1283  
Arg Arg Leu His Leu Phe Leu Leu Ser Leu Leu Gly Met Leu Thr Ala  
1 5 10 15  
Ser Gly Asn Ser Glu Leu Asn Ile Cys Phe Val Arg Lys Tyr Leu Phe  
20 25 30  
Phe Tyr Phe Glu Val Trp Gln Pro Ser Cys Tyr Pro Lys Ala Lys Pro  
35 40 45  
Leu Cys Gln Glu Ser Asn Lys Cys Leu Glu Ser Lys His Asp Val Ser  
50 55 60  
Ile Val Gln Pro Pro Phe Ser Trp Leu Phe Lys Gly Cys Thr Ser Cys  
65 70 75 80  
Ile Lys Gly Tyr Phe Met Leu Lys  
85

<210> 1284  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 1284  
Phe Cys Ile Phe Ser Arg Asp Gly Val Ser Pro Cys Trp Ser Asp Trp  
1 5 10 15  
Ser

<210> 1285  
<211> 515  
<212> PRT  
<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (74)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (97)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (126)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (135)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1285

Gly Cys Ser Leu His Leu Trp Ala Ser Leu Ala Arg His Ala Gly Gln

1

5

10

15

Cys Leu Pro Ala Pro Phe Ala Thr Ser Ser Ala Leu Arg Gly Leu Glu

20

25

30

Leu Gly Glu Arg Ala Gly Gly Leu Val Gly Trp Pro Gly Leu Arg Pro

35

40

45

Ala Ala Thr Thr Ile Leu Trp Pro Gly Arg Cys Glu Trp Ser Ala Gly

50

55

60

Gln Ser Ala Arg Cys Leu Ala Pro Gln Xaa Ile Pro Pro Ser Thr Pro

65

70

75

80

Gly Ser Ser Asp Val Gly Gln Leu Cys Ala Gly Ala Cys Asp Pro Arg

85

90

95

Xaa Gly Leu Gly Ala Ala Ser Ile Ala Ala Asp Gly Ala Pro Arg Gly

100

105

110

Pro Gly Glu Tyr Gln Pro Gly Lys Gly Ser Ala Arg Pro Xaa Thr Ala

115

120

125

Asp Pro Gly Arg Ala Gly Xaa Thr Glu Val Arg Glu Pro Ala Gly Ser

130

135

140

Ser Ala Gln Gln Arg Pro Lys Thr Arg Arg Val Ala Pro Leu Lys Asp

145

150

155

160

Leu Pro Val Asn Asp Glu His Val Thr Val Pro Pro Trp Lys Ala Asn  
165 170 175

Ser Lys Gln Pro Ala Phe Thr Ile His Val Asp Glu Ala Glu Lys Glu  
180 185 190

Ala Gln Lys Lys Pro Ala Glu Ser Gln Lys Ile Glu Arg Glu Asp Ala  
195 200 205

Leu Ala Phe Asn Ser Ala Ile Ser Leu Pro Gly Pro Arg Lys Pro Leu  
210 215 220

Val Pro Leu Asp Tyr Pro Met Asp Gly Ser Phe Glu Ser Pro His Thr  
225 230 235 240

Met Asp Met Ser Ile Val Leu Glu Asp Glu Lys Pro Val Ser Val Asn  
245 250 255

Glu Val Pro Asp Tyr His Glu Asp Ile His Thr Tyr Leu Arg Glu Met  
260 265 270

Glu Val Lys Cys Lys Pro Lys Val Gly Tyr Met Lys Lys Gln Pro Asp  
275 280 285

Ile Thr Asn Ser Met Arg Ala Ile Leu Val Asp Trp Leu Val Glu Val  
290 295 300

Gly Glu Glu Tyr Lys Leu Gln Asn Glu Thr Leu His Leu Ala Val Asn  
305 310 315 320

Tyr Ile Asp Arg Phe Leu Ser Ser Met Ser Val Leu Arg Gly Lys Leu  
325 330 335

Gln Leu Val Gly Thr Ala Ala Met Leu Leu Ala Ser Lys Phe Glu Glu  
340 345 350

Ile Tyr Pro Pro Glu Val Ala Glu Phe Val Tyr Ile Thr Asp Asp Thr  
355 360 365

Tyr Thr Lys Lys Gln Val Leu Arg Met Glu His Leu Val Leu Lys Val  
370 375 380

Leu Thr Phe Asp Leu Ala Ala Pro Thr Val Asn Gln Phe Leu Thr Gln  
385 390 395 400

Tyr Phe Leu His Gln Gln Pro Ala Asn Cys Lys Val Glu Ser Leu Ala  
405 410 415

Met Phe Leu Gly Glu Leu Ser Leu Ile Asp Ala Asp Pro Tyr Leu Lys  
420 425 430

Tyr Leu Pro Ser Val Ile Ala Gly Ala Ala Phe His Leu Ala Leu Tyr  
 435 440 445

Thr Val Thr Gly Gln Ser Trp Pro Glu Ser Leu Ile Arg Lys Thr Gly  
 450 455 460

Tyr Thr Leu Glu Ser Leu Lys Pro Cys Leu Met Asp Leu His Gln Thr  
 465 470 475 480

Tyr Leu Lys Ala Pro Gln His Ala Gln Gln Ser Ile Arg Glu Lys Tyr  
 485 490 495

Lys Asn Ser Lys Tyr His Gly Val Ser Leu Leu Asn Pro Pro Glu Thr  
 500 505 510

Leu Asn Leu  
 515

<210> 1286

<211> 108

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (85)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (96)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (102)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (107)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1286

Arg Pro Ala Cys Pro Ser Gln Glu Arg Pro Pro Pro Ser Gln Gln Met  
 1 5 10 15

Arg Gln Gly Cys Leu Ala Leu Pro Lys Ser Glu Ser Leu Pro Ser Gly



20

25

30

Ile Cys Arg Ser Ala Gln Gly Ser Arg Arg Ser Arg Gly Ala Gly Ala  
35 40 45

Ala Gly Pro Gln Pro Pro Leu Glu Arg Ala Asp Val Leu Asn Val Ser  
50 55 60

Pro Gly Arg Cys Leu Pro His Gln Trp Lys Leu Ser Ser Cys Cys Lys  
65 70 75 80

Thr Trp Leu Phe Xaa Glu Ser Phe Glu Ile His Arg Ser Thr Tyr Xaa  
85 90 95

Val His Gln Arg Thr Xaa Gly Ala Gly Val Xaa Pro  
100 105

&lt;210&gt; 1287

&lt;211&gt; 214

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (164)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (193)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (203)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (207)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (210)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (211)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1287

Gln Val Arg Phe Pro Ala Glu Glu Ala Ser Ser Pro Ala Pro Trp His  
 1 5 10 15

Pro Lys Ala Ala Ala Arg Ala Leu Pro Gln Ala Leu Ala Asn Gly Ala  
 20 25 30

Gln Leu Leu Leu Leu Gly Ser Ala Gly Pro Thr Met Glu Asn Gln Val  
 35 40 45

Gln Thr Leu Thr Ser Tyr Leu Trp Ser Arg His Leu Pro Val Glu Pro  
 50 55 60

Glu Glu Leu Gln Arg Arg Ala Arg His Leu Glu Lys Lys Phe Leu Glu  
 65 70 75 80

Asn Pro Asp Leu Ser Gln Thr Glu Glu Lys Leu Arg Gly Ala Val Leu  
 85 90 95

His Ala Leu Arg Lys Thr Thr Tyr His Trp Gln Glu Leu Ser Tyr Thr  
 100 105 110

Glu Gly Leu Ser Leu Val Tyr Met Ala Ala Arg Leu Asp Gly Gly Phe  
 115 120 125

Ala Ala Val Ser Arg Ala Phe His Glu Ile Arg Ala Arg Asn Pro Ala  
 130 135 140

Phe Gln Pro Gln Thr Leu Met Asp Phe Gly Ser Gly Thr Gly Leu Ser  
 145 150 155 160

Pro Gly Leu Xaa Thr Val Phe Gly Ala Arg Ala Tyr Val Asn Ile Trp  
 165 170 175

Cys Gly Gln Ile Thr Cys Met Trp Phe Ala Glu Asn Ser Glu Arg Gly  
 180 185 190

Xaa Ile Gly Ser Leu Tyr Ser Gly Leu Phe Xaa Ser Ser Thr Xaa Asn  
 195 200 205

Gln Xaa Xaa Leu Met Ile  
 210

&lt;210&gt; 1288

&lt;211&gt; 68

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (11)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1288

Xaa Ser Leu Asn Cys Gly Ser Ile Ser Thr Xaa Thr Asn Gln Gly Ser  
1 5 10 15

Pro Leu Ser Val Gly Tyr His Phe Pro Leu Leu Pro Pro Val Ile Phe  
20 25 30

Thr Phe Ser Thr Thr Gly Glu Leu Met Gly Ser Glu Gly Gln Met Tyr  
35 40 45

Phe Leu Phe Gly His Arg Gly Phe Pro Val Leu Cys Val Phe Leu Met  
50 55 60

Lys Glu Ser Leu  
65

<210> 1289

<211> 318

<212> PRT

<213> Homo sapiens

<400> 1289

Arg Leu Gln Val Val Gln Gln Trp Ile Gln Arg Ile Arg Gln Arg Pro  
1 5 10 15

Gly Cys Leu Trp Leu Leu Ala Val Ala Leu Leu Pro Trp Thr Cys Ala  
20 25 30

Ser Arg Ala Leu Gln His Leu Asp Pro Pro Ala Pro Leu Pro Leu Val  
35 40 45

Ile Trp His Gly Met Gly Asp Ser Cys Cys Asn Pro Leu Ser Met Gly  
50 55 60

Ala Ile Lys Lys Met Val Glu Lys Lys Ile Pro Gly Ile Tyr Val Leu  
65 70 75 80

Ser Leu Glu Ile Gly Lys Thr Leu Met Glu Asp Val Glu Asn Ser Phe  
                     85                    90                    95

Phe Leu Asn Val Asn Ser Gln Val Thr Thr Val Cys Gln Ala Leu Ala  
                     100                    105                    110

Lys Asp Pro Lys Leu Gln Gln Gly Tyr Asn Ala Met Gly Phe Ser Gln  
                     115                    120                    125

Gly Gly Gln Phe Leu Arg Ala Val Ala Gln Arg Cys Pro Ser Pro Pro  
                     130                    135                    140

Met Ile Asn Leu Ile Ser Val Gly Gly Gln His Gln Gly Val Phe Gly  
                     145                    150                    155                    160

Leu Pro Arg Cys Pro Gly Glu Ser Ser His Ile Cys Asp Phe Ile Arg  
                     165                    170                    175

Lys Thr Leu Asn Ala Gly Ala Tyr Ser Lys Val Val Gln Glu Arg Leu  
                     180                    185                    190

Val Gln Ala Glu Tyr Trp His Asp Pro Ile Lys Glu Asp Val Tyr Arg  
                     195                    200                    205

Asn His Ser Ile Phe Leu Ala Asp Ile Asn Gln Glu Arg Gly Ile Asn  
                     210                    215                    220

Glu Ser Tyr Lys Lys Asn Leu Met Ala Leu Lys Lys Phe Val Met Val  
                     225                    230                    235                    240

Lys Phe Leu Asn Asp Ser Ile Val Asp Pro Val Asp Ser Glu Trp Phe  
                     245                    250                    255

Gly Phe Tyr Arg Ser Gly Gln Ala Lys Glu Thr Ile Pro Leu Gln Glu  
                     260                    265                    270

Thr Ser Leu Tyr Thr Gln Asp Arg Leu Gly Leu Lys Glu Met Asp Asn  
                     275                    280                    285

Ala Gly Gln Leu Val Phe Leu Ala Thr Glu Gly Asp His Leu Gln Leu  
                     290                    295                    300

Ser Glu Glu Trp Phe Tyr Ala His Ile Ile Pro Phe Leu Gly  
                     305                    310                    315

&lt;210&gt; 1290

&lt;211&gt; 119

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1290

Lys His Met Gly Ser Cys Arg Leu Leu Leu Cys Phe Phe Pro Leu Ser  
1 5 10 15

Arg Trp Pro Gly Arg Asp Thr Thr Phe Cys Asn Gln Gly Thr Glu Asn  
20 25 30

Arg Arg Ala Cys Ser Gln Gln Ala Asn Ser Leu Arg Tyr Lys Ile Thr  
35 40 45

Tyr Arg Ser Cys Leu Arg Met Val Thr Asp Arg Pro Asp Cys Leu Gly  
50 55 60

His Arg Asn Thr Ser Cys Phe Pro Leu Lys Lys Val Leu Pro Glu Ala  
65 70 75 80

Phe Cys Leu Ser Ala Pro Cys Trp Ser Glu Val Gln Ala Asp Glu Asn  
85 90 95

Pro Asp Ile Ala Cys Gly Gly Leu Gln Leu Arg Lys Val Gly Arg Glu  
100 105 110

Ile Ile Leu Val Leu Val Gln  
115

&lt;210&gt; 1291

&lt;211&gt; 47

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (34)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (42)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1291

Ile Ser Asp Pro Tyr Ser Gln Gly Tyr Asn Tyr Ser Lys Lys Tyr Ile  
1 5 10 15

Gln Gly Lys Leu Xaa Leu Ile Ser Ser Leu Thr Tyr Arg Gly Asn Lys  
 20 25 30

Thr Xaa Val Leu Gln Ile Gly Leu Gln Xaa His His Cys Ser Gly  
 35 40 45

<210> 1292

<211> 275

<212> PRT

<213> Homo sapiens

<400> 1292

Gly Gly Ala Ser Asn Phe Leu Ser Trp Arg Glu Ser Ala Arg Trp Ser  
 1 5 10 15

Arg Gln Leu Arg Arg Thr Leu Ile Arg Leu Ser Phe Pro Ile Ser Cys  
 20 25 30

Gly Arg Ser His Ala Phe Gly Gly Cys Lys Met Ala Ala Thr Ser Gly  
 35 40 45

Thr Asp Glu Pro Val Ser Gly Glu Leu Val Ser Val Ala His Ala Leu  
 50 55 60

Ser Leu Pro Ala Glu Ser Tyr Gly Asn Asp Pro Asp Ile Glu Met Ala  
 65 70 75 80

Trp Ala Met Arg Ala Met Gln His Ala Glu Val Tyr Tyr Lys Leu Ile  
 85 90 95

Ser Ser Val Asp Pro Gln Phe Leu Lys Leu Thr Lys Val Asp Asp Gln  
 100 105 110

Ile Tyr Ser Glu Phe Arg Lys Asn Phe Glu Thr Leu Arg Ile Asp Val  
 115 120 125

Leu Asp Pro Glu Glu Leu Lys Ser Glu Ser Ala Lys Glu Lys Trp Arg  
 130 135 140

Pro Phe Cys Leu Lys Phe Asn Gly Ile Val Glu Asp Phe Asn Tyr Gly  
 145 150 155 160

Thr Leu Leu Arg Leu Asp Cys Ser Gln Gly Tyr Thr Glu Glu Asn Thr  
 165 170 175

Ile Phe Ala Pro Arg Ile Gln Phe Phe Ala Ile Glu Ile Ala Arg Asn  
 180 185 190

Arg Glu Gly Tyr Asn Lys Ala Val Tyr Ile Ser Val Gln Asp Lys Glu  
 195 200 205

Gly Glu Lys Gly Val Asn Asn Gly Gly Glu Lys Arg Ala Asp Ser Gly  
 210 215 220

Glu Glu Glu Asn Thr Lys Asn Gly Gly Glu Lys Gly Ala Asp Ser Gly  
 225 230 235 240

Glu Glu Lys Glu Glu Gly Ile Asn Arg Glu Asp Lys Thr Asp Lys Gly  
 245 250 255

Gly Glu Lys Gly Lys Glu Ala Asp Lys Glu Ile Asn Lys Ser Gly Glu  
 260 265 270

Lys Ala Met  
 275

<210> 1293  
 <211> 263  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (32)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (86)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1293  
 Gln Ile His Gly Gln Val Val Gly Thr Val Thr Cys Lys Cys Asp Leu  
 1 5 10 15

Glu Gly Ile Met Pro Asn Val Thr Ile Ser Leu Ser Leu Pro Thr Xaa  
 20 25 30

Gly Ser Pro Leu Gln Asp Ile Leu Val His Pro Cys Val Thr Ser Leu  
 35 40 45

Asp Ser Ala Ile Leu Thr Ser Ser Ser Ile Asp Ala Met Asp Asp Ser  
 50 55 60

Ala Phe Ser Gly Pro Tyr Lys Phe Pro Phe Thr Pro Pro Leu Glu Ser  
 65 70 75 80

Phe Asn Leu Cys Phe Xaa Thr Ser Gln Val Pro Val Pro Pro Ile Leu  
                   85                                  90                                  95  
 Gly Phe Tyr Gln Met Lys Glu Glu Glu Val Gln Leu Arg Ile Thr Ile  
                   100                                  105                                  110  
 Asn Leu Lys Leu His Glu Ser Val Lys Asn Asn Phe Glu Phe Cys Glu  
                   115                                  120                                  125  
 Ala His Ile Pro Phe Tyr Asn Arg Gly Pro Ile Thr His Leu Glu Tyr  
                   130                                  135                                  140  
 Lys Thr Ser Phe Gly Gln Leu Glu Val Phe Arg Glu Lys Ser Leu Leu  
                   145                                  150                                  155                                  160  
 Ile Trp Ile Ile Gly Gln Lys Phe Pro Lys Ser Met Glu Ile Ser Leu  
                                   165                                  170                                  175  
 Ser Gly Thr Val Thr Phe Gly Ala Lys Ser His Glu Lys Gln Pro Phe  
                                   180                                  185                                  190  
 Asp Pro Ile Cys Thr Gly Glu Thr Ala Tyr Leu Lys Leu His Phe Arg  
                   195                                  200                                  205  
 Ile Leu Asp Tyr Thr Leu Thr Gly Cys Tyr Ala Asp Gln His Ser Val  
                   210                                  215                                  220  
 Gln Val Phe Ala Ser Gly Lys Pro Lys Ile Ser Ala His Arg Lys Leu  
                   225                                  230                                  235                                  240  
 Ile Ser Ser Asp Tyr Tyr Ile Trp Asn Ser Lys Ala Pro Ala Pro Val  
                                   245                                  250                                  255  
 Thr Tyr Gly Ser Leu Leu Leu  
                                   260

<210> 1294  
 <211> 120  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (89)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1294  
 Pro Thr Arg Pro Pro Thr Arg Pro Pro Thr Arg Pro Arg Ser Cys Leu  
   1                                  5                                  10                                  15



Val Met Ser Gly Arg Gly Lys Gly Gly Lys Gly Leu Gly Lys Gly Gly  
20 25 30

Ala Lys Arg His Arg Lys Val Leu Arg Asp Asn Ile Gln Gly Ile Thr  
35 40 45

Lys Pro Ala Ile Arg Arg Leu Ala Arg Arg Gly Gly Val Lys Arg Ile  
50 55 60

Ser Gly Leu Ile Tyr Glu Glu Thr Arg Gly Val Leu Lys Val Phe Leu  
65 70 75 80

Glu Asn Val Ile Arg Asp Ala Val Xaa Tyr Thr Glu His Ala Lys Arg  
85 90 95

Lys Thr Val Thr Ala Met Asp Val Val Tyr Ala Leu Lys Arg Gln Gly  
100 105 110

Arg Thr Leu Tyr Gly Phe Gly Gly  
115 120

<210> 1295  
<211> 174  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (43)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (44)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (155)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (158)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (160)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (168)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1295

Lys Thr Gly Asn Gly Arg Val Tyr Pro His Pro Gln Asp Leu Leu Ala  
1 5 10 15

Ala Leu Pro Leu Ala Leu Val Leu Leu Ala Met Arg Leu Ala Phe Glu  
20 25 30

Lys Ile His Trp Pro Ala Pro Glu Pro Val Xaa Xaa Cys Glu Gly Ser  
35 40 45

Asp Gln Glu Ala Ser Glu Ala Gln Arg His Ala Gly Glu Thr Leu Pro  
50 55 60

His Gly Arg Ala Gln Ala Lys Glu Pro Gln Leu Ser Leu Leu Ala Ala  
65 70 75 80

Gln Cys Gly Leu Thr Leu Gln Gln Thr Gln Arg Trp Phe Arg Arg Arg  
85 90 95

Arg Asn Gln Asp Arg Pro Gln Leu Thr Lys Lys Phe Cys Glu Ala Ser  
100 105 110

Trp Arg Phe Leu Phe Tyr Leu Ser Ser Phe Val Gly Gly Leu Ser Val  
115 120 125

Leu Tyr His Glu Ser Trp Leu Trp Ala Pro Val Met Cys Trp Asp Arg  
130 135 140

Tyr Pro Asn Gln Thr Leu Lys Pro Ser Leu Xaa Trp Trp Xaa Leu Xaa  
145 150 155 160

Gly Ala Gly Phe Leu Thr Ser Xaa Cys Leu Ile Arg Cys Leu  
165 170

<210> 1296

<211> 286

<212> PRT

<213> Homo sapiens

<400> 1296

Ala His Ser Ser Ile Pro Ala Lys His Arg Asn Met Thr Glu Met Ser

1 5 10 15  
Phe Leu Ser Ser Glu Val Leu Val Gly Asp Leu Met Ser Pro Phe Asp  
20 25 30  
Gln Ser Gly Leu Gly Ala Glu Glu Ser Leu Gly Leu Leu Asp Asp Tyr  
35 40 45  
Leu Glu Val Ala Lys His Phe Lys Pro His Gly Phe Ser Ser Asp Lys  
50 55 60  
Ala Lys Ala Gly Ser Ser Glu Trp Leu Ala Val Asp Gly Leu Val Ser  
65 70 75 80  
Pro Ser Asn Asn Ser Lys Glu Asp Ala Phe Ser Gly Thr Asp Trp Met  
85 90 95  
Leu Glu Lys Met Asp Leu Lys Glu Phe Asp Leu Asp Ala Leu Leu Gly  
100 105 110  
Ile Asp Asp Leu Glu Thr Met Pro Asp Asp Leu Leu Thr Thr Leu Asp  
115 120 125  
Asp Thr Cys Asp Leu Phe Ala Pro Leu Val Gln Glu Thr Asn Lys Gln  
130 135 140  
Pro Pro Gln Thr Val Asn Pro Ile Gly His Leu Pro Glu Ser Leu Thr  
145 150 155 160  
Lys Pro Asp Gln Val Ala Pro Phe Thr Phe Leu Gln Pro Leu Pro Leu  
165 170 175  
Ser Pro Gly Val Leu Ser Ser Thr Pro Asp His Ser Phe Ser Leu Glu  
180 185 190  
Leu Gly Ser Glu Val Asp Ile Thr Glu Gly Asp Arg Lys Pro Asp Tyr  
195 200 205  
Thr Ala Tyr Val Ala Met Ile Pro Gln Cys Ile Lys Glu Glu Asp Thr  
210 215 220  
Pro Ser Asp Asn Asp Ser Gly Ile Cys Met Ser Pro Glu Ser Tyr Leu  
225 230 235 240  
Gly Ser Pro Gln His Ser Pro Ser Thr Arg Gly Ser Pro Asn Arg Ser  
245 250 255  
Leu Pro Ser Ser Arg Cys Ser Leu Trp Val Cys Pro Ser Gln Thr Leu  
260 265 270  
Arg Ser Ser Trp Arg Glu Asp Gly Ser Ser Lys Ser Lys Gly

275

280

285

&lt;210&gt; 1297

&lt;211&gt; 169

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1297

Ala Ala Arg Gly Arg Ala Ala Ala Glu His Pro Ala Gly Ala Asp Ser  
 1 5 10 15

Met Ala Ser Pro Asp Pro Pro Ala Thr Ser Tyr Ala Pro Ser Asp Val  
 20 25 30

Pro Ser Gly Val Ala Leu Phe Leu Thr Ile Pro Phe Ala Phe Phe Leu  
 35 40 45

Pro Glu Leu Ile Phe Gly Phe Leu Val Trp Thr Met Val Ala Ala Thr  
 50 55 60

His Ile Val Tyr Pro Leu Leu Gln Gly Trp Val Met Tyr Val Ser Leu  
 65 70 75 80

Thr Ser Phe Leu Ile Ser Leu Met Phe Leu Leu Ser Tyr Leu Phe Gly  
 85 90 95

Phe Tyr Lys Arg Phe Glu Ser Trp Arg Val Leu Asp Ser Leu Tyr His  
 100 105 110

Gly Thr Thr Gly Ile Leu Tyr Met Ser Ala Ala Val Leu Gln Val His  
 115 120 125

Ala Thr Ile Val Ser Glu Lys Leu Leu Asp Pro Arg Ile Tyr Tyr Ile  
 130 135 140

Asn Ser Ala Ala Ser Phe Phe Ala Phe Ile Ala Thr Leu Leu Tyr Ile  
 145 150 155 160

Leu His Ala Phe Ser Ile Tyr Tyr His  
 165

&lt;210&gt; 1298

&lt;211&gt; 164

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1298

Ala Leu Arg Asn Glu Met Ala Val Leu Trp Arg Leu Ser Ala Val Cys  
1 5 10 15  
Gly Ala Leu Gly Gly Arg Ala Leu Leu Leu Arg Thr Pro Val Val Arg  
20 25 30  
Pro Ala His Ile Ser Ala Phe Leu Gln Asp Arg Pro Ile Pro Glu Trp  
35 40 45  
Cys Gly Val Gln His Ile His Leu Ser Pro Ser His His Ser Gly Ser  
50 55 60  
Lys Ala Ala Ser Leu His Trp Thr Ser Glu Arg Val Val Ser Val Leu  
65 70 75 80  
Leu Leu Gly Leu Leu Pro Ala Ala Tyr Leu Asn Pro Cys Ser Ala Met  
85 90 95  
Asp Tyr Ser Leu Ala Ala Ala Leu Thr Leu His Gly His Trp Gly Leu  
100 105 110  
Gly Gln Val Val Thr Asp Tyr Val His Gly Asp Ala Leu Gln Lys Ala  
115 120 125  
Ala Lys Ala Gly Leu Leu Ala Leu Ser Ala Leu Thr Phe Ala Gly Leu  
130 135 140  
Cys Tyr Phe Asn Tyr His Asp Val Gly Ile Cys Lys Ala Val Ala Met  
145 150 155 160  
Leu Trp Lys Leu

<210> 1299

<211> 717

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (147)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE  
 <222> (181)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (232)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (379)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (389)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (671)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1299

Val Cys Leu Gln Arg Asp Ala Pro Arg Gly Gln Ala Arg Ser Pro Gly  
 1 5 10 15

Glu Ala Gln Glu Pro Glu Glu Leu Ala Arg Arg Gln Arg Arg His Pro  
 20 25 30

Glu Leu Ser Gln Gly Glu Xaa Val Ala Ser Val Ile Ile Tyr Arg Thr  
 35 40 45

Leu Ala Gly Leu Leu Pro His Asn Tyr Asp Pro Asp Lys Arg Ser Leu  
 50 55 60

Arg Val Pro Lys Arg Pro Ile Ile Asn Thr Pro Val Val Ser Ile Ser  
 65 70 75 80

Val His Asp Asp Glu Glu Leu Leu Pro Arg Ala Leu Asp Lys Pro Val  
 85 90 95

Thr Val Gln Phe Arg Leu Leu Glu Thr Glu Glu Arg Thr Lys Pro Ile  
 100 105 110

Cys Val Phe Trp Asn His Ser Ile Leu Val Ser Gly Thr Gly Gly Trp  
 115 120 125

Ser Ala Arg Gly Cys Glu Val Val Phe Arg Asn Glu Ser His Val Ser  
 130 135 140

Cys Gln Xaa Asn His Met Thr Ser Phe Ala Val Leu Met Asp Val Ser  
145 150 155 160

Arg Arg Glu Asn Gly Glu Ile Leu Pro Leu Lys Thr Leu Thr Tyr Val  
165 170 175

Ala Leu Gly Val Xaa Leu Ala Ala Leu Leu Leu Thr Phe Phe Phe Leu  
180 185 190

Thr Leu Leu Arg Ile Leu Arg Ser Asn Gln His Gly Ile Arg Arg Asn  
195 200 205

Leu Thr Ala Ala Leu Gly Leu Ala Gln Leu Val Phe Leu Leu Gly Ile  
210 215 220

Asn Gln Ala Asp Leu Pro Phe Xaa Cys Thr Val Ile Ala Ile Leu Leu  
225 230 235 240

His Phe Leu Tyr Leu Cys Thr Phe Ser Trp Ala Leu Leu Glu Ala Leu  
245 250 255

His Leu Tyr Arg Ala Leu Thr Glu Val Arg Asp Val Asn Thr Gly Pro  
260 265 270

Met Arg Phe Tyr Tyr Met Leu Gly Trp Gly Val Pro Ala Phe Ile Thr  
275 280 285

Gly Leu Ala Val Gly Leu Asp Pro Glu Gly Tyr Gly Asn Pro Asp Phe  
290 295 300

Cys Trp Leu Ser Ile Tyr Asp Thr Leu Ile Trp Ser Phe Gly Gly Pro  
305 310 315 320

Val Ala Phe Ala Val Ser Met Ser Val Phe Leu Tyr Ile Leu Ala Ala  
325 330 335

Arg Ala Ser Cys Ala Ala Gln Arg Gln Gly Phe Glu Lys Lys Gly Pro  
340 345 350

Val Ser Gly Leu Gln Pro Ser Phe Ala Val Leu Leu Leu Leu Ser Ala  
355 360 365

Thr Trp Leu Leu Ala Leu Leu Ser Val Asn Xaa Asp Thr Leu Leu Phe  
370 375 380

His Tyr Leu Phe Xaa Thr Cys Asn Cys Ile Gln Gly Pro Phe Ile Phe  
385 390 395 400

Leu Ser Tyr Val Val Leu Ser Lys Glu Val Arg Lys Ala Leu Lys Leu  
405 410 415

Ala Cys Ser Arg Lys Pro Ser Pro Asp Pro Ala Leu Thr Thr Lys Ser  
420 425 430

Thr Leu Thr Ser Ser Tyr Asn Cys Pro Ser Pro Tyr Ala Asp Gly Arg  
435 440 445

Leu Tyr Gln Pro Tyr Gly Asp Ser Ala Gly Ser Leu His Ser Thr Ser  
450 455 460

Arg Ser Gly Lys Ser Gln Pro Ser Tyr Ile Pro Phe Leu Leu Arg Glu  
465 470 475 480

Glu Ser Ala Leu Asn Pro Gly Gln Gly Pro Pro Gly Leu Gly Asp Pro  
485 490 495

Gly Ser Leu Phe Leu Glu Gly Gln Asp Gln Gln His Asp Pro Asp Thr  
500 505 510

Asp Ser Asp Ser Asp Leu Ser Leu Glu Asp Asp Gln Ser Gly Ser Tyr  
515 520 525

Ala Ser Thr His Ser Ser Asp Ser Glu Glu Glu Glu Glu Glu Glu  
530 535 540

Glu Glu Ala Ala Phe Pro Gly Glu Gln Gly Trp Asp Ser Leu Leu Gly  
545 550 555 560

Pro Gly Ala Glu Arg Leu Pro Leu His Ser Thr Pro Lys Asp Gly Gly  
565 570 575

Pro Gly Pro Gly Lys Ala Pro Trp Pro Gly Asp Phe Gly Thr Thr Ala  
580 585 590

Lys Glu Ser Ser Gly Asn Gly Ala Pro Glu Glu Arg Leu Arg Glu Asn  
595 600 605

Gly Asp Ala Leu Ser Arg Glu Gly Ser Leu Gly Pro Leu Pro Gly Ser  
610 615 620

Ser Ala Gln Pro His Lys Gly Ile Leu Lys Lys Lys Cys Leu Pro Thr  
625 630 635 640

Ile Ser Glu Lys Ser Ser Leu Leu Arg Leu Pro Leu Glu Gln Cys Thr  
645 650 655

Gly Ser Ser Arg Gly Ser Ser Ala Ser Glu Gly Ser Arg Gly Xaa Pro  
660 665 670

Pro Pro Arg Pro Pro Pro Arg Gln Ser Leu Gln Glu Gln Leu Asn Gly  
675 680 685



Val Met Pro Ile Ala Met Ser Ile Lys Ala Gly Thr Val Asp Glu Asp  
690 695 700

Ser Ser Gly Ser Glu Phe Leu Phe Phe Asn Phe Leu His  
705 710 715

<210> 1300

<211> 145

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (111)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (112)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (124)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (125)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1300

Ala Ser Arg Asn Ala Asp Leu Ser Ile Thr Leu Gly Thr Ser Leu Gln

1                      5                      10                      15

Ile Arg Pro Ser Gly Asn Leu Pro Xaa Ala Thr Lys Arg Arg Xaa Gly  
20                      25                      30

Arg Leu Val Ile Val Asn Leu Gln Pro Thr Lys His Asp Arg His Ala  
35                      40                      45

Asp Leu Arg Ile His Gly Tyr Val Asp Glu Val Met Thr Arg Leu Met  
50                      55                      60

Lys His Leu Gly Leu Glu Ile Pro Ala Trp Asp Gly Pro Arg Val Leu  
65                      70                      75                      80

Glu Arg Ala Leu Pro Pro Leu Pro Ala Arg Pro Pro Pro Ser Trp Ser  
85                      90                      95

Pro Arg Arg Asn Leu Pro Pro Gly Ser Thr Ala Leu Ser Pro Xaa Xaa  
100                      105                      110

Pro Ser Arg Xaa Pro Ala Pro Ser Thr Thr Ala Xaa Xaa Pro Pro Ala  
115                      120                      125

Pro Asn Gly Ser Gly Pro Pro Ala Leu Pro Pro Thr Asp Pro Pro Lys  
130                      135                      140

Gly  
145

<210> 1301

<211> 68

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (67)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1301

Thr Arg Cys Leu Leu Lys Ile Gln Lys Ile Ser Gln Val Trp Trp His  
1                      5                      10                      15

Asn Ala Val Ile Pro Ala Thr Gln Glu Ala Glu Ala Gly Glu Ser Leu

20

25

30

Glu Pro Gly Arg Trp Glu Val Thr Val Ser Gln Val Cys Ala Thr Ala  
35 40 45

Phe Gln Pro Gly Leu Ile Glu Trp Asp Phe Arg Leu Gln Lys Lys Lys  
50 55 60

Lys Lys Xaa Xaa  
65

&lt;210&gt; 1302

&lt;211&gt; 60

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1302

Lys Tyr Pro Val Pro Arg Pro Leu Phe Thr His Ala Cys Lys Phe Thr  
1 5 10 15

Gly Lys Thr Leu Glu Thr Asn Val Leu Ser Ser Thr Glu Ile Trp Pro  
20 25 30

Ser Ser Leu Phe Leu Asn Cys Ser Leu Cys Val Arg His Ile Cys Leu  
35 40 45

Ile Pro His Ser Ala Leu Thr Phe Arg Gln Ile Arg  
50 55 60

&lt;210&gt; 1303

&lt;211&gt; 107

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1303

Arg Ser Asp Ser Arg Ser Thr His Ala Ser Gly Arg Leu Arg Thr Ala  
1 5 10 15

Gln Leu Ala Pro Pro Gly Leu Gly Arg Thr Arg Ser Gly Phe Ser Ser  
20 25 30

Cys Arg Pro Tyr Gly Ala Val Phe Ser Leu Ser Arg Gly Val Arg Ala  
35 40 45

Ser His Ala Gly Pro Gly Arg Glu Lys Ser Lys Ala Cys Arg Gly Cys  
50 55 60

Arg Glu Lys Thr Lys Arg Gly Cys Ile Ser Gly Asn Phe Arg Cys Ser  
65 70 75 80

Ile Cys Ala Arg Lys Glu Lys Glu Lys Gly Lys Asn Arg Lys Thr Asn  
85 90 95

Cys Tyr Ile Arg Ala Pro Thr Arg Arg Trp Thr  
100 105

<210> 1304

<211> 69

<212> PRT

<213> Homo sapiens

<400> 1304

Lys His Ile Phe Trp Leu Ala Glu Lys Asn Lys Thr Lys Leu Leu Phe  
1 5 10 15

Leu Phe Leu Ala Leu Arg Val Tyr Ser Lys Arg Asp Phe Phe Glu Leu  
20 25 30

Phe Leu Tyr Tyr Phe Ser Phe Asn Cys Ala Val Val His Glu Thr Glu  
35 40 45

Leu Leu Cys Phe Ser Val Arg Asp Gly Lys Gly Phe Phe Ser Ile Ser  
50 55 60

Phe Met Cys Gly Ile  
65

<210> 1305

<211> 75

<212> PRT

<213> Homo sapiens

<400> 1305

Lys Asn Val Ile Gly Thr Ile Asn Lys Asp Cys Glu Arg Leu Phe Lys  
1 5 10 15

Ser Cys Glu Ser Leu Lys Pro Ile Ser Gln Gly Val Pro Cys Leu Asn  
20 25 30

Leu Leu Leu Phe Pro Gln Arg Thr Lys Pro Val His Lys Leu Pro Lys  
35 40 45

Leu Pro Phe Trp Arg Trp Lys Leu Thr Arg Arg Glu Gly Leu Leu Leu  
50 55 60

Glu Ser Ile Gln Tyr Lys Gln Ile Ile Leu Pro  
65 70 75

<210> 1306  
<211> 44  
<212> PRT  
<213> Homo sapiens

<400> 1306  
Pro Thr Trp Arg Asn Pro Val Ser Thr Lys Asn Thr Lys Ile Ser Trp  
1 5 10 15

Ala Leu Trp Arg Ala Pro Val Ile Pro Ala Thr Trp Glu Ala Glu Ala  
20 25 30

Glu Glu Ser Leu Lys Pro Arg Arg Arg Arg Leu Gln  
35 40

<210> 1307  
<211> 105  
<212> PRT  
<213> Homo sapiens

<400> 1307  
Arg Leu Cys Ala Phe Asn Lys Arg Met Thr Phe Gln Phe Asn Phe Thr  
1 5 10 15

Ile Glu Asp His Leu Glu Asn Glu Leu Thr Pro Ile Arg Asp Gly Ala  
20 25 30

Leu Thr Leu Asp Ser Ser Lys Glu Leu Ser Val Ser Glu Ser Gln Lys  
35 40 45

Gly Glu Glu Arg Asp Arg Lys Cys Ser Ala Glu Gln Phe Asp Leu Pro  
50 55 60

Gln Asp His Leu Trp Glu His Lys Ser Met Glu Asn Ala Ala Pro Ser  
65 70 75 80

Gln Asp Thr Asp Ser Pro Leu Ser Ala Ala Ser Ser Ser Arg Asn Leu  
85 90 95

Gly Ala Thr Trp Glu Asn Ser Pro Pro  
100 105

<210> 1308

<211> 75

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (13)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1308

Gly Arg Ala His Ala Ile Thr Val Ser Val Ala Asn Xaa Lys Ala Leu  
1 5 10 15

Ala Lys Cys Glu Lys Tyr Met Leu Thr His Gln Glu Leu Ala Ser Asp  
20 25 30

Gly Glu Ile Glu Thr Lys Leu Ile Lys Gly Asp Ile Tyr Lys Thr Arg  
35 40 45

Gly Gly Gly Gln Ser Val Gln Phe Thr Asp Ile Glu Thr Leu Lys Gln  
50 55 60

Glu Ser Pro Asn Gly Val Leu Trp Leu Trp Arg  
65 70 75

<210> 1309

<211> 231

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (178)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1309

Leu Glu Arg Phe Ala Ser Arg Arg Pro Gln Val Leu Ala Val Arg Thr  
1 5 10 15

Val Cys Asp Leu Val Leu Gly Lys Met Asp Lys Asp Cys Glu Met Lys  
20 25 30

Arg Thr Thr Leu Asp Ser Pro Leu Gly Lys Leu Glu Leu Ser Gly Cys  
35 40 45

Glu Gln Gly Leu His Glu Ile Lys Leu Leu Gly Lys Gly Thr Ser Ala  
50 55 60

Ala Asp Ala Val Glu Val Pro Ala Pro Ala Ala Val Leu Gly Gly Pro  
65 70 75 80

Glu Pro Leu Met Gln Cys Thr Ala Trp Leu Asn Ala Tyr Phe His Gln  
85 90 95

Pro Glu Ala Ile Glu Glu Phe Pro Val Pro Ala Leu His His Pro Val  
100 105 110

Phe Gln Gln Glu Ser Phe Thr Arg Gln Val Leu Trp Lys Leu Leu Lys  
115 120 125

Val Val Lys Phe Gly Glu Val Ile Ser Tyr Gln Gln Leu Ala Ala Leu  
130 135 140

Ala Gly Asn Pro Lys Ala Ala Arg Ala Val Gly Gly Ala Met Arg Gly  
145 150 155 160

Asn Pro Val Pro Ile Leu Ile Pro Cys His Arg Val Val Cys Ser Ser  
165 170 175

Gly Xaa Val Gly Asn Tyr Ser Gly Gly Leu Ala Val Lys Glu Trp Leu  
180 185 190

Leu Ala His Glu Gly His Arg Leu Gly Lys Pro Gly Leu Gly Gly Ser  
195 200 205

Ser Gly Leu Ala Gly Ala Trp Leu Lys Gly Ala Gly Ala Thr Ser Gly  
210 215 220

Ser Pro Pro Ala Gly Arg Asn  
225 230

&lt;210&gt; 1310

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1310

Pro Val Leu Thr Pro Ala Thr Leu Ile Tyr Phe Ser Ile Asn Cys Leu  
1 5 10 15

Ser Gly Ser Gln Ser Trp Asn His His Ser Gly Arg Gly Leu Ala Cys  
20 25 30

Thr Arg Met Phe Glu Val Val Ser Ser Thr Ser Gly Leu Ser Ile Cys  
35 40 45

Gly Glu Arg Cys Val Ala Ile Ala Ala Gly Leu His Gly His Leu Ser  
 50 55 60

Thr Thr Arg Val Leu Trp Thr Trp Ser Asn His Arg Glu Arg Leu Arg  
 65 70 75 80

Val Glu Phe Cys Leu Cys Arg Gly Thr Gly Ala Val Trp Trp Glu Arg  
 85 90 95

Pro Val Pro Gly Glu Thr Leu Glu Thr Leu Arg Glu Pro Leu  
 100 105 110

<210> 1311  
 <211> 139  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (6)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1311  
 Ala Val Val Thr Ala Xaa Gln Val Pro Lys Gln Val Ser Trp Val Gln  
 1 5 10 15

Gln Asp Thr Pro Pro Phe Gln Gly Ser Trp Tyr Arg Gln Lys Gln Glu  
 20 25 30

Trp Val Leu Ser Cys Cys Arg His Thr Ala Val Val Phe Leu Gln Leu  
 35 40 45

Ser Asn Lys Arg Leu Ser His Arg Pro Glu Leu Pro Trp Tyr Val Val  
 50 55 60

Lys Ser Lys Thr Ser Ser Leu Gly Tyr Leu Ser Ser Phe Met Lys Gln  
 65 70 75 80

Val Leu Arg Thr Arg Lys Asn His Leu Pro Pro Ser Phe Val Arg Gln  
 85 90 95

Asn Gln Val Lys Gly Asn Met Leu Glu Asn Val Pro Arg Glu Asp Thr  
 100 105 110

Ser Thr Phe Ala Leu Ser Asn Pro Ser Ser Glu Lys Gly Val Pro Trp  
 115 120 125

Pro Gln Lys Glu Leu Pro Ser Phe Gly Glu Glu  
 130 135



&lt;210&gt; 1312

&lt;211&gt; 231

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1312

Ala Glu Ala Glu Val Thr Pro Pro Glu Glu Gln Gln Glu Ala Glu Glu  
1 5 10 15

Pro Lys Ala Arg Val Leu Arg Ser Lys Ser Leu Cys His Asp Glu Ile  
20 25 30

Glu Asn Leu Leu Asp Ser Asp His Arg Glu Leu Ile Gly Asp Tyr Ser  
35 40 45

Lys Ala Phe Leu Leu Gln Thr Val Asp Gly Lys His Gln Asp Leu Lys  
50 55 60

Tyr Ile Ser Pro Glu Thr Met Val Ala Leu Leu Thr Gly Lys Phe Ser  
65 70 75 80

Asn Ile Val Asp Lys Phe Val Ile Val Asp Cys Arg Tyr Pro Tyr Glu  
85 90 95

Tyr Glu Gly Gly His Ile Lys Thr Ala Val Asn Leu Pro Leu Glu Arg  
100 105 110

Asp Ala Glu Ser Phe Leu Leu Lys Ser Pro Ile Ala Pro Cys Ser Leu  
115 120 125

Asp Lys Arg Val Ile Leu Ile Phe His Cys Glu Phe Ser Ser Glu Arg  
130 135 140

Gly Pro Arg Met Cys Arg Phe Ile Arg Glu Arg Asp Arg Ala Val Asn  
145 150 155 160

Asp Tyr Pro Ser Leu Tyr Tyr Pro Glu Met Tyr Ile Leu Lys Gly Gly  
165 170 175

Tyr Lys Glu Phe Phe Pro Gln His Pro Asn Phe Cys Glu Pro Gln Asp  
180 185 190

Tyr Arg Pro Met Asn His Glu Ala Phe Lys Asp Glu Leu Lys Thr Phe  
195 200 205

Arg Leu Lys Thr Arg Ser Trp Ala Gly Glu Arg Ser Arg Arg Glu Leu  
210 215 220

Cys Ser Arg Leu Gln Asp Gln  
225 230

<210> 1313

<211> 312

<212> PRT

<213> Homo sapiens

<400> 1313

Ala Ala Val Ile Pro Ser Leu Gly Phe Leu Pro Gly Leu Pro Arg Ala  
1 5 10 15

Arg Ser Arg Ala Gly Pro Glu Gln Pro Lys Met Ala Asp Phe Asp Asp  
20 25 30

Arg Val Ser Asp Glu Glu Lys Val Arg Ile Ala Ala Lys Phe Ile Thr  
35 40 45

His Ala Pro Pro Gly Glu Phe Asn Glu Val Phe Asn Asp Val Arg Leu  
50 55 60

Leu Leu Asn Asn Asp Asn Leu Leu Arg Glu Gly Ala Ala His Ala Phe  
65 70 75 80

Ala Gln Tyr Asn Met Asp Gln Phe Thr Pro Val Lys Ile Glu Gly Tyr  
85 90 95

Glu Asp Gln Val Leu Ile Thr Glu His Gly Asp Leu Gly Asn Ser Arg  
100 105 110

Phe Leu Asp Pro Arg Asn Lys Ile Ser Phe Lys Phe Asp His Leu Arg  
115 120 125

Lys Glu Ala Ser Asp Pro Gln Pro Glu Glu Ala Asp Gly Gly Leu Lys  
130 135 140

Ser Trp Arg Glu Ser Cys Asp Ser Ala Leu Arg Ala Tyr Val Lys Asp  
145 150 155 160

His Tyr Ser Asn Gly Phe Cys Thr Val Tyr Ala Lys Thr Ile Asp Gly  
165 170 175

Gln Gln Thr Ile Ile Ala Cys Ile Glu Ser His Gln Phe Gln Pro Lys  
180 185 190

Asn Phe Trp Asn Gly Arg Trp Arg Ser Glu Trp Lys Phe Thr Ile Thr  
195 200 205

Pro Pro Thr Ala Gln Val Val Gly Val Leu Lys Ile Gln Val His Tyr

210

215

220

Tyr Glu Asp Gly Asn Val Gln Leu Val Ser His Lys Asp Val Gln Asp  
225 230 235 240

Ser Leu Thr Val Ser Asn Glu Ala Gln Thr Ala Lys Glu Phe Ile Lys  
245 250 255

Ile Ile Glu Asn Ala Glu Asn Glu Tyr Gln Thr Ala Ile Ser Glu Asn  
260 265 270

Tyr Gln Thr Met Ser Asp Thr Thr Phe Lys Ala Leu Arg Arg Gln Leu  
275 280 285

Pro Val Thr Arg Thr Lys Ile Asp Trp Asn Lys Ile Leu Ser Tyr Lys  
290 295 300

Ile Gly Lys Glu Met Gln Asn Ala  
305 310

&lt;210&gt; 1314

&lt;211&gt; 260

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (234)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (246)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (249)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (256)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1314

Ala Phe Asn Ala Leu Val Thr Phe Cys Ile Arg Asp Leu Ile Gly Cys  
1 5 10 15

Leu Gln Lys Leu Leu Phe Gly Lys Val Ala Lys Asp Ser Ser Arg Met  
20 25 30

Leu Gln Pro Ser Ser Ser Pro Leu Trp Gly Lys Leu Arg Val Asp Ile  
35 40 45

Lys Ala Tyr Leu Gly Ser Ala Ile Gln Leu Val Ser Cys Leu Ser Glu  
50 55 60

Thr Thr Val Leu Ala Ala Val Leu Arg His Ile Ser Val Leu Val Pro  
65 70 75 80

Cys Phe Leu Thr Phe Pro Lys Gln Cys Arg Met Leu Leu Lys Arg Met  
85 90 95

Val Val Val Trp Ser Thr Gly Glu Glu Ser Leu Arg Val Leu Ala Phe  
100 105 110

Leu Val Leu Ser Arg Val Cys Arg His Lys Lys Asp Thr Phe Leu Gly  
115 120 125

Pro Val Leu Lys Gln Met Tyr Ile Thr Tyr Val Arg Asn Cys Lys Phe  
130 135 140

Thr Ser Pro Gly Ala Leu Pro Phe Ile Ser Phe Met Gln Trp Thr Leu  
145 150 155 160

Thr Glu Leu Leu Ala Leu Glu Pro Gly Val Ala Tyr Gln His Ala Phe  
165 170 175

Leu Tyr Ile Arg Gln Leu Ala Ile His Leu Arg Asn Ala Met Thr Thr  
180 185 190

Arg Lys Lys Glu Thr Tyr Gln Ser Val Tyr Asn Trp Gln Tyr Val His  
195 200 205

Cys Leu Phe Leu Trp Cys Arg Val Leu Ser Thr Ala Gly Pro Ser Glu  
210 215 220

Ala Ser Ser Pro Trp Ser Asn Pro Leu Xaa Pro Ser His His Trp Leu  
225 230 235 240

Tyr Gln Ala His Pro Xaa Cys Pro Xaa Leu Thr Arg Cys Glu Cys Xaa  
245 250 255

Ala Ser Val Ala  
260

&lt;210&gt; 1315

<211> 194  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (158)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (160)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (174)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (175)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (183)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (189)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (193)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1315  
Arg Ser Arg Leu Trp Ala Pro Val Arg Glu Ser His Thr Tyr Leu Arg  
1 5 10 15

Met Pro Gly Leu Ser Cys Arg Phe Tyr Gln His Lys Phe Pro Glu Val  
20 25 30

Glu Asp Val Val Met Val Asn Val Arg Ser Ile Ala Glu Met Gly Ala  
35 40 45

Tyr Val Ser Leu Leu Glu Tyr Asn Asn Ile Glu Gly Met Ile Leu Leu  
50 55 60

Ser Glu Leu Ser Arg Arg Arg Ile Arg Ser Ile Asn Lys Leu Ile Arg  
65 70 75 80

Ile Gly Arg Asn Glu Cys Val Val Val Ile Arg Val Asp Lys Glu Lys  
85 90 95

Gly Tyr Ile Asp Leu Ser Lys Arg Arg Val Ser Pro Glu Glu Ala Ile  
100 105 110

Lys Cys Glu Asp Lys Phe Thr Lys Ser Lys Thr Val Tyr Ser Ile Leu  
115 120 125

Arg His Val Ala Glu Val Leu Glu Tyr Thr Lys Asp Glu Gln Leu Glu  
130 135 140

Ser Leu Phe Gln Arg Thr Ala Trp Val Phe Asp Asp Lys Xaa Lys Xaa  
145 150 155 160

Pro Gly Tyr Gly Ala Tyr Asp Ala Phe Lys His Ala Ala Xaa Xaa Pro  
165 170 175

Ser Asn Phe Gly Lys Val Xaa Ile Gly Met Lys Ile Xaa Arg Glu Arg  
180 185 190

Xaa His

<210> 1316  
<211> 59  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (8)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (23)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (24)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (44)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (55)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (58)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1316

Ala	Lys	Ile	Ser	Gln	Glu	Lys	Xaa	Phe	His	Lys	Xaa	Met	Ser	Ser	Val
1				5					10					15	

Lys	Ala	Arg	Thr	Gly	His	Xaa	Xaa	Phe	Phe	Cys	Gly	Gly	Met	Ser	Ser
			20						25					30	

Val	Lys	Xaa	Gly	Gln	Gly	Ile	Phe	Thr	Ser	Phe	Xaa	Ile	Leu	Gln	Leu
		35						40					45		

Leu	Gln	Ala	Ile	Trp	Ala	Xaa	Thr	Cys	Xaa	Ser
		50						55		

<210> 1317

<211> 194

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (5)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1317

Gly Cys Gly Asp Xaa Arg Ala Ala Thr Thr Thr Ala Leu Ile Ser Val

1                    5                    10                    15

Val Thr Thr Ala Ser Ala Gly Gly Glu Asp Glu Ser Ser Arg Ile Glu  
                  20                    25                    30

Leu Gly Asp Val Thr Pro His Asn Ile Lys Gln Leu Lys Arg Leu Asn  
                  35                    40                    45

Gln Val Ile Phe Pro Val Ser Tyr Asn Asp Lys Phe Tyr Lys Asp Val  
                  50                    55                    60

Leu Glu Val Gly Glu Leu Ala Lys Leu Ala Tyr Phe Asn Asp Ile Ala  
                  65                    70                    75                    80

Val Gly Ala Val Cys Cys Arg Val Asp His Ser Gln Asn Gln Lys Arg  
                  85                    90                    95

Leu Tyr Ile Met Thr Leu Gly Cys Leu Ala Pro Tyr Arg Arg Leu Gly  
                  100                    105                    110

Ile Gly Thr Lys Met Leu Asn His Val Leu Asn Ile Cys Glu Lys Asp  
                  115                    120                    125

Gly Thr Phe Asp Asn Ile Tyr Leu His Val Gln Ile Ser Asn Glu Ser  
                  130                    135                    140

Ala Ile Asp Phe Tyr Arg Lys Phe Gly Phe Glu Ile Ile Glu Thr Lys  
                  145                    150                    155                    160

Lys Asn Tyr Tyr Lys Arg Ile Glu Pro Ala Asp Ala His Val Leu Gln  
                  165                    170                    175

Lys Asn Leu Lys Val Pro Ser Gly Gln Asn Ala Asp Val Gln Lys Thr  
                  180                    185                    190

Asp Asn

<210> 1318

<211> 60

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1318

Thr His Leu Phe Val Leu Leu Pro Xaa Asp Thr Phe Ser Thr Ser Cys  
1 5 10 15

Pro Ser Thr Val Arg His Ile Gln Ala Pro Arg Ser Trp Ser Pro Asn  
20 25 30

Thr Leu Lys Asn His Glu Phe Ile Xaa Met Val Ser Gln Ser Pro Asn  
35 40 45

Gln Pro Asn Gln Thr Cys Tyr Leu Val Leu Leu Gly  
50 55 60

<210> 1319

<211> 106

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (61)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1319

Ala Arg Pro Pro Ala Ala Arg Thr Gly Val Ala Gly Gly Gly Ala Pro  
1 5 10 15

Val Arg Lys Pro Gly Ile Arg Gly His Asp Gly Ala Gly Pro Arg Leu  
20 25 30

Leu Ala Ala Pro Arg Pro Pro Trp Pro Ser Ala Gly Val Gly Gln Lys  
35 40 45

His Ser Thr Leu Arg Lys Gly Thr Xaa Arg Ala Arg Xaa Cys Val Pro  
50 55 60

Gly Leu Ser Glu Gln Arg Cys Glu Asp Gln Gln Arg Glu Glu Ile Pro  
65 70 75 80

Ser Ser Arg Gly Cys His Cys Leu Pro Pro His Leu Ser Pro Ser Thr

85

90

95

Val Ile Phe Phe Ile Tyr Ile Met Thr His  
 100 105

&lt;210&gt; 1320

&lt;211&gt; 402

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (6)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1320

Gly Thr Arg Glu Pro Xaa Leu Leu Ala Glu Leu Lys Pro Gly Arg Pro  
 1 5 10 15

His Gln Phe Asp Trp Lys Ser Ser Cys Glu Thr Trp Ser Val Ala Phe  
 20 25 30

Ser Pro Asp Gly Ser Trp Phe Ala Trp Ser Gln Gly His Cys Ile Val  
 35 40 45

Lys Leu Ile Pro Trp Pro Leu Glu Glu Gln Phe Ile Pro Lys Gly Phe  
 50 55 60

Glu Ala Lys Ser Arg Ser Ser Lys Asn Glu Thr Lys Gly Arg Gly Ser  
 65 70 75 80

Pro Lys Glu Lys Thr Leu Asp Cys Gly Gln Ile Val Trp Gly Leu Ala  
 85 90 95

Phe Ser Pro Trp Pro Ser Pro Pro Ser Arg Lys Leu Trp Ala Arg His  
 100 105 110

His Pro Gln Val Pro Asp Val Ser Cys Leu Val Leu Ala Thr Gly Leu  
 115 120 125

Asn Asp Gly Gln Ile Lys Ile Trp Glu Val Gln Thr Gly Leu Leu Leu  
 130 135 140

Leu Asn Leu Ser Gly His Gln Asp Val Val Arg Asp Leu Ser Phe Thr  
 145 150 155 160

Pro Ser Gly Ser Leu Ile Leu Val Ser Ala Ser Arg Asp Lys Thr Leu  
 165 170 175

Arg Ile Trp Asp Leu Asn Lys His Gly Lys Gln Ile Gln Val Leu Ser  
180 185 190

Gly His Leu Gln Trp Val Tyr Cys Cys Ser Ile Ser Pro Asp Cys Ser  
195 200 205

Met Leu Cys Ser Ala Ala Gly Glu Lys Ser Val Phe Leu Trp Ser Met  
210 215 220

Arg Ser Tyr Thr Leu Ile Arg Lys Leu Glu Gly His Gln Ser Ser Val  
225 230 235 240

Val Ser Cys Asp Phe Ser Pro Asp Ser Ala Leu Leu Val Thr Ala Ser  
245 250 255

Tyr Asp Thr Asn Val Ile Met Trp Asp Pro Tyr Thr Gly Glu Arg Leu  
260 265 270

Arg Ser Leu His His Thr Gln Val Asp Pro Ala Met Asp Asp Ser Asp  
275 280 285

Val His Ile Ser Ser Leu Arg Ser Val Cys Phe Ser Pro Glu Gly Leu  
290 295 300

Tyr Leu Ala Thr Val Ala Asp Asp Arg Leu Leu Arg Ile Trp Ala Leu  
305 310 315 320

Glu Leu Lys Thr Pro Ile Ala Phe Ala Pro Met Thr Asn Gly Leu Cys  
325 330 335

Cys Thr Phe Phe Pro His Gly Gly Val Ile Ala Thr Gly Thr Arg Asp  
340 345 350

Gly His Val Gln Phe Trp Thr Ala Pro Arg Val Leu Ser Ser Leu Lys  
355 360 365

His Leu Cys Arg Lys Ala Leu Arg Ser Phe Leu Thr Thr Tyr Gln Val  
370 375 380

Leu Ala Leu Pro Ile Pro Lys Lys Met Lys Glu Phe Leu Thr Tyr Arg  
385 390 395 400

Thr Phe

&lt;210&gt; 1321

&lt;211&gt; 88

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1321

Val Trp Gln Gly Thr Leu Leu Leu Ala Ser Pro Pro Arg Arg Glu Val  
1 5 10 15

Asp Met Thr Ser Pro Pro Pro His Gln Gly Trp Glu Gln Arg Gly Cys  
20 25 30

Gly Glu Ser Gln Val Pro Leu Ala Leu Ser Arg Val Phe Ser Thr Ser  
35 40 45

His Tyr Cys Leu Leu Leu Val Ala Asn Gln Ser Ile Phe Phe Pro Cys  
50 55 60

Leu Trp Ala Val Glu Ser Ala Ala Gly Cys Thr Leu His Leu Pro Thr  
65 70 75 80

Glu Leu Gly Lys Glu Asp Asn Gln  
85

&lt;210&gt; 1322

&lt;211&gt; 284

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (232)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (237)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (250)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (262)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (265)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (269)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1322

Arg Thr Arg Gly Gly Arg Val Gly Ala Tyr Glu His Pro Gly Ser Ser  
1 5 10 15

Leu Phe Pro Glu Gly Pro Asn Asp Tyr Val Phe Ser His Leu Pro Leu  
20 25 30

His Ser Gln Gln Gln Val Arg Ala Pro Ile Pro Met Val Pro Val Gly  
35 40 45

Gly Ile Gln Met Val His Ser Met Pro Pro Ala Leu Ser Ser Leu His  
50 55 60

Pro Ser Pro Thr Leu Pro Leu Pro Met Glu Gly Phe Glu Glu Lys Lys  
65 70 75 80

Gly Ala Ser Gly Glu Ser Phe Ser Lys Asp Pro Tyr Val Leu Ser Lys  
85 90 95

Gln His Glu Lys Arg Gly Pro His Ala Leu Gln Ser Ser Gly Pro Pro  
100 105 110

Ser Thr Pro Ser Ser Pro Arg Leu Leu Met Lys Gln Ser Thr Ser Glu  
115 120 125

Asp Ser Leu Asn Ala Thr Glu Arg Glu Gln Glu Glu Asn Ile Gln Thr  
130 135 140

Cys Thr Lys Ala Ile Ala Ser Leu Arg Ile Ala Thr Glu Glu Ala Ala  
145 150 155 160

Leu Leu Gly Pro Asp Gln Pro Ala Arg Val Gln Glu Pro His Gln Asn  
165 170 175

Pro Leu Gly Ser Ala His Val Ser Ile Arg His Phe Ser Arg Pro Glu  
180 185 190

Pro Gly Gln Pro Cys Thr Ser Ala Thr His Pro Asp Leu His Asp Gly  
195 200 205

Glu Lys Asp Asn Phe Gly Thr Ser Gln Thr Pro Leu Ala His Ser Thr  
210 215 220

Phe Tyr Ser Lys Ser Cys Val Xaa Asp Lys Gln Leu Xaa Phe Ser Gln  
225 230 235 240

Gln Gln Gly Asn Phe Leu Ser Ser Thr Xaa Gly Lys Gln Arg Ser Phe  
 245 250 255

Leu Gln Glu Lys Ser Xaa Ala Tyr Xaa Gly Leu Leu Xaa Gly Trp Gly  
 260 265 270

Asp Phe Pro Phe Pro Thr Phe Phe Pro Phe Phe Phe  
 275 280

<210> 1323

<211> 278

<212> PRT

<213> Homo sapiens

<400> 1323

Ala Leu Lys Val Leu Cys Phe Phe Phe Pro Ile Leu Thr Gln His Tyr  
 1 5 10 15

Trp Cys Phe Leu Tyr Asp Phe Pro Leu Ile Leu Ser Asp Val Met Thr  
 20 25 30

Glu Ala His His Lys Tyr Asp His Ser Glu Ala Thr Gly Ser Ser Ser  
 35 40 45

Trp Asp Ile Gln Asn Ser Phe Arg Arg Glu Lys Leu Glu Gln Lys Ser  
 50 55 60

Pro Asp Ser Lys Thr Leu Gln Glu Asp Ser Pro Gly Val Arg Gln Arg  
 65 70 75 80

Val Tyr Glu Cys Gln Glu Cys Gly Lys Ser Phe Arg Gln Lys Gly Ser  
 85 90 95

Leu Thr Leu His Glu Arg Ile His Thr Gly Gln Lys Pro Phe Glu Cys  
 100 105 110

Thr His Cys Gly Lys Ser Phe Arg Ala Lys Gly Asn Leu Val Thr His  
 115 120 125

Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Glu Cys Gly  
 130 135 140

Lys Ser Phe Ser Gln Arg Gly Ser Leu Ala Val His Glu Arg Leu His  
 145 150 155 160

Thr Gly Gln Lys Pro Tyr Glu Cys Ala Ile Cys Gln Arg Ser Phe Arg  
 165 170 175

Asn Gln Ser Asn Leu Ala Val His Arg Arg Val His Ser Gly Glu Lys  
180 185 190

Pro Tyr Arg Cys Asp Gln Cys Gly Lys Ala Phe Ser Gln Lys Gly Ser  
195 200 205

Leu Ile Val His Ile Arg Val His Thr Gly Leu Lys Pro Tyr Ala Cys  
210 215 220

Thr Gln Cys Arg Lys Ser Phe His Thr Arg Gly Asn Cys Ile Leu His  
225 230 235 240

Gly Lys Ile His Thr Gly Glu Thr Pro Tyr Leu Cys Gly Gln Cys Gly  
245 250 255

Lys Ser Phe Thr Gln Arg Gly Ser Leu Ala Val His Gln Arg Ser Cys  
260 265 270

Ser Gln Arg Leu Thr Leu  
275

&lt;210&gt; 1324

&lt;211&gt; 248

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1324

Gly Thr Ser Trp Ser Arg Pro Phe Arg Gln Cys Phe Gln Thr Pro Trp  
1 5 10 15

Glu Arg Gly Cys Arg Val Arg Ser Ser Val Cys Thr Ala Arg Gly Arg  
20 25 30

Ala Gln Gln Arg Met Ser Gly Thr Leu Glu Lys Val Leu Cys Leu Arg  
35 40 45

Asn Asn Thr Ile Phe Lys Gln Ala Phe Ser Leu Leu Arg Phe Arg Thr  
50 55 60

Ser Gly Glu Lys Pro Ile Tyr Ser Val Gly Gly Ile Leu Leu Ser Ile  
65 70 75 80

Ser Arg Pro Tyr Lys Thr Lys Pro Thr His Gly Ile Gly Lys Tyr Lys  
85 90 95

His Leu Ile Lys Ala Glu Glu Pro Lys Lys Lys Lys Gly Lys Val Glu  
100 105 110

Val Arg Ala Ile Asn Leu Gly Thr Asp Tyr Glu Tyr Gly Val Leu Asn

115

120

125

Ile His Leu Thr Ala Tyr Asp Met Thr Leu Ala Glu Ser Tyr Ala Gln  
 130 135 140

Tyr Val His Asn Leu Cys Asn Ser Leu Ser Ile Lys Val Glu Glu Ser  
 145 150 155 160

Tyr Ala Met Pro Thr Lys Thr Ile Glu Val Leu Gln Leu Gln Asp Gln  
 165 170 175

Gly Ser Lys Met Leu Leu Asp Ser Val Leu Thr Thr His Glu Arg Val  
 180 185 190

Val Gln Ile Ser Gly Leu Ser Ala Thr Phe Ala Glu Ile Phe Leu Glu  
 195 200 205

Ile Ile Gln Ser Ser Leu Pro Glu Gly Val Arg Leu Ser Val Lys Glu  
 210 215 220

His Thr Glu Glu Asp Phe Lys Gly Arg Phe Lys Ala Arg Pro Glu Leu  
 225 230 235 240

Glu Glu Leu Leu Ala Lys Leu Lys  
 245

&lt;210&gt; 1325

&lt;211&gt; 139

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1325

Pro Gly Ser Thr His Ala Ser Ala His Ala Ser Ala Arg Pro Thr Arg  
 1 5 10 15

Lys Met Ala Pro Gln Lys Asp Arg Lys Pro Lys Arg Ser Thr Trp Arg  
 20 25 30

Phe Asn Leu Asp Leu Thr His Pro Val Glu Asp Gly Ile Phe Asp Ser  
 35 40 45

Gly Asn Phe Glu Gln Phe Leu Arg Glu Lys Val Lys Val Asn Gly Lys  
 50 55 60

Thr Gly Asn Leu Gly Asn Val Val His Ile Glu Arg Phe Lys Asn Lys  
 65 70 75 80

Ile Thr Val Val Ser Glu Lys Gln Phe Ser Lys Arg Tyr Leu Lys Tyr  
 85 90 95



Leu Thr Lys Lys Tyr Leu Lys Lys Asn Asn Leu Arg Asp Trp Leu Arg  
100 105 110

Val Val Ala Ser Asp Lys Glu Thr Tyr Glu Leu Arg Tyr Phe Gln Ile  
115 120 125

Ser Gln Asp Glu Asp Glu Ser Glu Ser Glu Asp  
130 135

<210> 1326

<211> 356

<212> PRT

<213> Homo sapiens

<400> 1326

Ile Pro Thr Arg Pro Arg Thr Arg Gly Ser Leu Gly Ser Ala Val Lys  
1 5 10 15

Leu Arg Thr Phe Ala Glu Asn Tyr Pro Ile Pro Glu Pro Gly Pro Asn  
20 25 30

Glu Val Leu Leu Arg Met His Ser Val Gly Ile Cys Gly Ser Asp Val  
35 40 45

His Tyr Trp Glu Tyr Gly Arg Ile Gly Asn Phe Ile Val Lys Lys Pro  
50 55 60

Met Val Leu Gly His Glu Ala Ser Gly Thr Val Glu Lys Val Gly Ser  
65 70 75 80

Ser Val Lys His Leu Lys Pro Gly Asp Arg Val Ala Ile Glu Pro Gly  
85 90 95

Ala Pro Arg Glu Asn Asp Glu Phe Cys Lys Met Gly Arg Tyr Asn Leu  
100 105 110

Ser Pro Ser Ile Phe Phe Cys Ala Thr Pro Pro Asp Asp Gly Asn Leu  
115 120 125

Cys Arg Phe Tyr Lys His Asn Ala Ala Phe Cys Tyr Lys Leu Pro Asp  
130 135 140

Asn Val Thr Phe Glu Glu Gly Ala Leu Ile Glu Pro Leu Ser Val Gly  
145 150 155 160

Ile His Ala Cys Arg Arg Gly Gly Val Thr Leu Gly His Lys Val Leu  
165 170 175

Val Cys Gly Ala Gly Pro Ile Gly Met Val Thr Leu Leu Val Ala Lys  
                   180                                  185                                  190  
 Ala Met Gly Ala Ala Gln Val Val Val Thr Asp Leu Ser Ala Thr Arg  
                   195                                  200                                  205  
 Leu Ser Lys Ala Lys Glu Ile Gly Ala Asp Leu Val Leu Gln Ile Ser  
                   210                                  215                                  220  
 Lys Glu Ser Pro Gln Glu Ile Ala Arg Lys Val Glu Gly Gln Leu Gly  
                   225                                  230                                  235                                  240  
 Cys Lys Pro Glu Val Thr Ile Glu Cys Thr Gly Ala Glu Ala Ser Ile  
                                   245                                  250                                  255  
 Gln Ala Gly Ile Tyr Ala Thr Arg Ser Gly Gly Thr Leu Val Leu Val  
                                   260                                  265                                  270  
 Gly Leu Gly Ser Glu Met Thr Thr Val Pro Leu Leu His Ala Ala Ile  
                   275                                  280                                  285  
 Arg Glu Val Asp Ile Lys Gly Val Phe Arg Tyr Cys Asn Thr Trp Pro  
                   290                                  295                                  300  
 Val Ala Ile Ser Met Leu Ala Ser Lys Ser Val Asn Val Lys Pro Leu  
                   305                                  310                                  315                                  320  
 Val Thr His Arg Phe Pro Leu Glu Lys Ala Leu Glu Ala Phe Glu Thr  
                                   325                                  330                                  335  
 Phe Lys Lys Gly Leu Gly Leu Lys Ile Met Leu Lys Cys Asp Pro Ser  
                   340                                  345                                  350  
 Asp Gln Asn Pro  
                   355

<210> 1327  
 <211> 107  
 <212> PRT  
 <213> Homo sapiens

<400> 1327  
 Met Asp Ala Ile Leu Asn Tyr Arg Ser Glu Asp Thr Glu Asp Tyr Tyr  
   1                                  5                                  10                                  15  
 Thr Leu Leu Gly Cys Asp Glu Leu Ser Ser Val Glu Gln Ile Leu Ala  
                   20                                  25                                  30  
 Glu Phe Lys Val Arg Ala Leu Glu Cys His Pro Asp Lys His Pro Glu

35

40

45

Asn Pro Lys Ala Val Glu Thr Phe Gln Lys Leu Gln Lys Ala Lys Glu  
50 55 60

Ile Leu Thr Asn Glu Glu Ser Arg Ala Arg Tyr Asp His Trp Arg Arg  
65 70 75 80

Ser Gln Met Ser Met Pro Phe Gln Gln Trp Glu Ala Leu Asn Asp Ser  
85 90 95

Val Lys Thr Val Gly Phe Ser Leu Gly Ala Thr  
100 105

&lt;210&gt; 1328

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (1)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1328

Xaa Val Ser Leu Ala Ala Leu Lys Lys Ala Leu Ala Ala Ala Gly Tyr  
1 5 10 15

Asp Val Glu Lys Asn Asn Ser Arg Ile Lys Leu Gly Leu Lys Ser Leu  
20 25 30

Val Ser Lys Gly Thr Leu Val Gln Thr Lys Gly Thr Gly Ala Ser Gly  
35 40 45

Ser Phe Lys Leu Asn Lys Lys Ala Ala Ser Gly Glu Ala Lys Pro Lys  
50 55 60

Val Lys Lys Ala Gly Gly Thr Lys Pro Lys Lys Pro Val Gly Ala Ala  
65 70 75 80

Lys Lys Pro Lys Lys Ala Ala Gly Gly Ala Thr Pro Lys Lys Ser Ala  
85 90 95

Lys Lys Thr Pro Lys Lys Ala Lys Lys Pro Pro Arg Pro Leu  
100 105 110

&lt;210&gt; 1329

<211> 292  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (20)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (145)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (207)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1329  
 Leu Gly Leu Ile Cys Gln Ala Leu Trp Phe Pro Ser Tyr Phe Arg Gly  
   1                  5                  10                  15  
 Cys Tyr Gly Xaa Leu Gly Gly Arg Pro His Met Gly Arg Gly Trp Val  
                   20                  25                  30  
 Val Asp Gly Val Ser Val Val Ser Cys Gly Arg Val Ile Leu Leu Leu  
           35                  40                  45  
 Phe Leu Phe Thr Phe Phe Pro Leu His Lys Pro Lys Ser Phe His Leu  
       50                  55                  60  
 Val Ser Thr Val Trp Thr Val Leu Glu Leu Gly Ala Cys Gln Lys Asn  
   65                  70                  75                  80  
 Leu Gly Leu Gly Lys Pro Gln Val Ala Asp Met Val Lys Gln Arg Asn  
                   85                  90                  95  
 Cys Ser Ser Gly Ser Cys Thr Thr Ser Glu Gly Gln Lys Pro Ser Pro  
           100                  105                  110  
 Gly Arg Arg Arg Val Phe Arg Ser Gln Thr Phe Gly Glu Lys Ala Ala  
       115                  120                  125  
 Pro Ser Leu Leu Gly Asp Arg His Ser Ala Cys Val Pro Gln Leu Gly  
       130                  135                  140  
 Xaa Ala Gly Ser Leu Thr Tyr Glu Ala Trp Arg Ser Ser His Cys Pro  
   145                  150                  155                  160  
 His Tyr Gly Gln Arg Gly Asp Pro Ala Gly Pro Leu Gly Gln Thr Gly

165 170 175  
Ala Asn Thr Ala Ser His Pro Leu Trp Leu Leu Ala Met Pro Gln Val  
180 185 190  
Pro Lys Lys Met Glu Asp Pro Cys Ala Arg Ser Gln Pro Gly Xaa Pro  
195 200 205  
Glu Gly Gln Cys Pro Ser Glu Asp Arg Ser Glu Arg Ile Lys Phe Pro  
210 215 220  
Val Gly Pro Leu Ser Pro Leu Gly Cys Val Phe Gln Leu Leu Thr Phe  
225 230 235 240  
Gln Arg Gly Pro Ser Arg Ser Pro Ala Gly Phe Pro Gln Gly Leu Pro  
245 250 255  
Leu Arg Trp Glu Trp Ile Ser Thr Arg Ala Phe Asp Phe Gly Gln Ile  
260 265 270  
Gly Pro His Ser His Arg Phe Ser Cys Gln Gly Pro Trp Thr Gly Gly  
275 280 285  
Trp Cys Phe Leu  
290

<210> 1330  
<211> 130  
<212> PRT  
<213> Homo sapiens

<400> 1330  
Arg Arg Arg Trp Leu Ala Arg Leu Gly Glu Gly Val Ser Lys Met Met  
1 5 10 15  
Leu Gln His Pro Gly Gln Val Ser Ala Ser Glu Val Ser Ala Ser Ala  
20 25 30  
Ile Val Pro Cys Leu Ser Pro Pro Gly Ser Leu Val Phe Glu Asp Phe  
35 40 45  
Ala Asn Leu Thr Pro Phe Val Lys Glu Glu Leu Arg Phe Ala Ile Gln  
50 55 60  
Asn Lys His Leu Cys His Arg Met Ser Ser Ala Leu Glu Ser Val Thr  
65 70 75 80  
Val Ser Asp Arg Pro Leu Gly Val Ser Ile Thr Lys Ala Glu Val Ala  
85 90 95

Pro Glu Glu Asp Glu Arg Lys Lys Arg Arg Arg Glu Arg Asn Lys Ile  
100 105 110

Ala Ala Ala Lys Cys Arg Asn Lys Lys Lys Glu Lys Thr Asp Ala Cys  
115 120 125

Arg Lys  
130

<210> 1331

<211> 232

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (168)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (186)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (187)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (199)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (202)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (209)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1331

Gly Lys Leu Val Arg Leu Gln Val Pro Val Arg Asn Ser Arg Val Asp  
1 5 10 15

Pro Arg Val Arg Ala Glu Asn Arg Ser Trp Lys Cys Leu Leu Ala Ala  
20 25 30

Arg Gly Glu Glu Arg Gly Ala Ser Ile Met Ala Glu Gln Asp Val Glu  
35 40 45

Asn Asp Leu Leu Asp Tyr Asp Glu Glu Glu Glu Pro Gln Ala Pro Gln  
50 55 60

Glu Ser Thr Pro Ala Pro Pro Lys Lys Asp Ile Lys Gly Ser Tyr Val  
65 70 75 80

Ser Ile His Ser Ser Gly Phe Arg Asp Phe Leu Leu Lys Pro Glu Leu  
85 90 95

Leu Arg Ala Ile Val Asp Cys Gly Phe Glu His Pro Ser Glu Val Gln  
100 105 110

His Glu Cys Ile Pro Gln Ala Ile Leu Gly Met Asp Val Leu Cys Gln  
115 120 125

Ala Lys Ser Gly Met Gly Lys Thr Ala Val Phe Val Leu Ala Thr Leu  
130 135 140

Gln Gln Ile Glu Pro Val Asn Gly Gln Val Thr Val Leu Val Met Cys  
145 150 155 160

His Thr Arg Glu Leu Ala Phe Xaa Ile Ser Lys Glu Tyr Glu Arg Phe  
165 170 175

Ser Lys Tyr Met Pro Ser Val Lys Val Xaa Xaa Ser Ala Arg Leu Asp  
180 185 190

Gln Ala Pro Leu Gly Phe Xaa Ser Phe Xaa Ser Leu Gly Ser Gly Pro  
195 200 205

Xaa Ser Ile Tyr Gln Ala Trp Gln Gly Gln Leu Pro Leu Lys Val Cys  
210 215 220

Ser Gly Phe Cys Ser Leu Lys Ala  
225 230

&lt;210&gt; 1332

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1332

Gly His Gly Glu Gln Arg Xaa His Gly Arg Glu Val Asn Ala Leu Lys  
1 5 10 15

Ser Lys Leu Arg Arg Gly Asn Glu Thr Ser Phe Val Pro Ser Arg Arg  
20 25 30

Ser Gly Gly Arg Arg Val Ile Glu Asn Ala Asp Gly Ser Glu Glu Glu  
35 40 45

Thr Asp Thr Arg Asp Ala Asp Phe Asn Gly Thr Lys Ala Ser Glu  
50 55 60

&lt;210&gt; 1333

&lt;211&gt; 175

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (59)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1333

Ala Ile Ser Val Leu Ala Ser Pro Leu Thr Ser Leu Leu Ser Cys Gly  
1 5 10 15

Asp Arg Met Asp Arg Phe Leu Val Lys Gly Ala Gln Gly Gly Leu Leu  
20 25 30

Arg Lys Gln Glu Glu Gln Glu Pro Thr Gly Glu Glu Pro Ala Val Leu  
35 40 45

Gly Gly Asp Lys Glu Ser Thr Arg Lys Arg Xaa Arg Arg Glu Ala Pro  
50 55 60

Gly Asn Gly Gly His Ser Ala Gly Pro Ser Trp Arg His Ile Arg Ala  
65 70 75 80

Glu Gly Leu Asp Cys Ser Tyr Thr Val Leu Phe Gly Lys Ala Glu Ala  
85 90 95

Asp Glu Ile Phe Gln Glu Leu Glu Lys Glu Val Glu Tyr Phe Thr Gly  
100 105 110

Ile Lys Met Ala Val Thr Thr Ser Gly Ser Thr Glu Met Met Lys Glu



115

120

125

Asn Trp Pro Leu Gly Ala Pro Leu Pro Leu Ser Pro Ser Val Pro Ala  
130 135 140

Glu Thr Leu Ser Ser Gly Ile Arg Ile Pro Val Gly Lys Ala Pro Pro  
145 150 155 160

Gly Gly Trp Arg Trp Ser Gly Cys Arg Trp Pro Thr Gly Ala Tyr  
165 170 175

&lt;210&gt; 1334

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1334

Ser Ser Phe Leu Leu Val Gln Phe Asp Gly Val Asn Gly Glu Phe Gln  
1 5 10 15

Ala Gln Leu Leu Asn Phe Val Ala Ser Ser Ser Ser Pro Ser His Leu  
20 25 30

Gln Ser Ser Ala Pro Leu Cys Leu Gly Asp Arg Gln Glu Val Gly Glu  
35 40 45

Glu Leu Asn Leu Phe Ile Phe Pro Gly Arg Asp Ile Phe Lys Ala  
50 55 60

&lt;210&gt; 1335

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (50)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1335

Leu Leu Leu Phe Leu Ile Met Phe Ser Ala Glu Arg His Gly Leu Lys  
1 5 10 15

Glu Pro Lys Arg Val Glu Glu Leu Gln Asn Lys Ile Val Asn Cys Leu  
20 25 30

Lys Asp His Val Thr Phe Asn Asn Gly Gly Leu Asn Arg Pro Asn Tyr

35 40 45  
Leu Xaa Lys Leu Leu Gly Lys Leu Pro Glu Leu Arg Thr Leu Cys Thr  
50 55 60  
Gln Gly Leu Gln Arg Ile Phe Tyr Leu Lys Leu Glu Asp Leu Val Pro  
65 70 75 80  
Pro Pro Ala Ile Ile Asp Lys Leu Phe Leu Asp Thr Leu Pro Phe  
85 90 95

<210> 1336  
<211> 84  
<212> PRT  
<213> Homo sapiens

<400> 1336  
Asp Arg Arg Arg Lys Trp Arg Gly Gly Gly Ile Leu Glu Leu Leu Arg  
1 5 10 15  
Met Gly Gly Val Pro Ser Ala Glu Ala Lys Gly Gly Glu Gln Pro Ser  
20 25 30  
Trp Ser Trp Arg Asp Gly Glu Gly Phe Gln Leu Ile Cys Arg Ser Cys  
35 40 45  
Pro Cys Gly Pro Gln Pro Ser Gly Leu Ala Val Asp Val Pro Leu Pro  
50 55 60  
Thr His Leu Pro Ala Cys Pro Pro Ala Arg Ile Ala Leu Ala Asp Leu  
65 70 75 80  
Pro Glu Arg Thr

<210> 1337  
<211> 146  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (75)  
<223> Xaa equals any of the naturally occurring L-amino acids  
<400> 1337  
Ala Gly Leu Arg Lys Arg Gly Arg Ser Gly Ser Ala Ala Gln Ala Glu

1                      5                      10                      15  
Gly Leu Cys Lys Gln Trp Leu Gln Arg Ala Trp Gln Glu Arg Arg Leu  
                    20                      25                      30  
Leu Leu Arg Glu Pro Arg Tyr Thr Leu Leu Val Ala Ala Cys Leu Cys  
                    35                      40                      45  
Leu Ala Glu Val Gly Ile Thr Phe Trp Val Ile His Arg Val Ala Tyr  
                    50                      55                      60  
Thr Glu Ile Asp Trp Lys Ala Tyr Met Ala Xaa Val Glu Gly Val Ile  
                    65                      70                      75                      80  
Asn Gly Thr Tyr Asp Tyr Thr Gln Leu Gln Gly Asp Thr Gly Pro Leu  
                    85                      90                      95  
Val Tyr Pro Ala Gly Phe Val Tyr Ile Phe Met Gly Leu Tyr Tyr Ala  
                    100                      105                      110  
Thr Ser Arg Gly Thr Asp Ile Arg Met Ala Gln Asn Ile Phe Ala Val  
                    115                      120                      125  
Leu Tyr Leu Ala Thr Leu Leu Leu Val Phe Leu Ile Tyr His Gln Thr  
                    130                      135                      140  
Cys Lys  
145

<210> 1338  
<211> 187  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (177)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (185)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (187)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1338

Leu Thr Leu Leu Phe Pro Glu Pro Pro Ala Gln Ala Gly Met Phe Val  
 1 5 10 15

Leu Val Glu Met Val Asp Thr Val Arg Ile Pro Pro Trp Gln Phe Glu  
 20 25 30

Arg Lys Leu Asn Asp Ser Ile Ala Glu Glu Leu Asn Lys Lys Leu Ala  
 35 40 45

Asn Lys Val Val Tyr Asn Val Gly Leu Cys Ile Cys Leu Phe Asp Ile  
 50 55 60

Thr Lys Leu Glu Asp Ala Tyr Val Phe Pro Gly Asp Gly Ala Ser His  
 65 70 75 80

Thr Lys Val His Phe Arg Cys Val Val Phe His Pro Phe Leu Asp Glu  
 85 90 95

Ile Leu Ile Gly Lys Ile Lys Gly Cys Ser Pro Glu Gly Val His Val  
 100 105 110

Ser Leu Gly Phe Phe Asp Asp Ile Leu Ile Pro Pro Glu Ser Leu Gln  
 115 120 125

Gln Pro Ala Lys Phe Asp Glu Ala Glu Gln Val Trp Val Trp Glu Tyr  
 130 135 140

Glu Thr Glu Glu Gly Ala His Asp Leu Tyr Met Asp Thr Gly Glu Glu  
 145 150 155 160

Ile Arg Phe Arg Val Val Asp Glu Ser Phe Val Asp Thr Ser Pro Thr  
 165 170 175

Xaa Pro Ser Ser Ala Asp Ala Thr Xaa Phe Xaa  
 180 185

&lt;210&gt; 1339

&lt;211&gt; 43

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (29)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1339

Gly Gln Thr Phe Thr Ser Gly Asn Leu Leu Ser His Val Phe His Phe

1

5

10

15

Tyr Ala His Arg Ile Ile Trp Cys Asn Gly Ala Tyr Xaa Pro Lys Phe  
20 25 30

Gln Asn Phe Lys Phe Met Tyr Leu Phe Leu His  
35 40

&lt;210&gt; 1340

&lt;211&gt; 104

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (1)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (31)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (100)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1340

Xaa Pro Ala Pro Gln Gln Pro Gly Pro Gln Arg Cys Glu Glu Pro Leu  
1 5 10 15

His Arg Asp Leu Pro Gly Gly Ala Asp Gln Ser Gly Arg Arg Xaa Ser  
20 25 30

Leu Arg Gln Thr Arg Thr Trp Lys Phe Ile Asp Pro Phe Cys Arg Ile  
35 40 45

Ala Ala Arg Thr Lys Asp Ser Leu Val Leu Asn Asn Ile Thr Arg Gly  
50 55 60

Ile Phe Glu Thr Ile Val Glu Gln Ala Pro Leu Ala Ile Glu Asp Leu  
65 70 75 80

Leu Asn Glu Leu Asp Thr Gln Asp Glu Glu Val Ala Ser Asp Ser Asp  
85 90 95

Glu Ser Ser Xaa Gly Gly Glu Arg  
100

&lt;210&gt; 1341

&lt;211&gt; 169

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (126)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1341

Gly Ser Thr Pro Arg Gly Lys Met Arg Ala Pro Ile Pro Glu Pro Lys  
 1 5 10 15

Pro Gly Asp Leu Ile Glu Ile Phe Arg Pro Phe Tyr Arg His Trp Ala  
 20 25 30

Ile Tyr Val Gly Asp Gly Tyr Val Val His Leu Ala Pro Pro Ser Glu  
 35 40 45

Val Ala Gly Ala Gly Ala Ala Ser Val Met Ser Ala Leu Thr Asp Lys  
 50 55 60

Ala Ile Val Lys Lys Glu Leu Leu Tyr Asp Val Ala Gly Ser Asp Lys  
 65 70 75 80

Tyr Gln Val Asn Asn Lys His Asp Asp Lys Tyr Ser Pro Leu Pro Cys  
 85 90 95

Ser Lys Ile Ile Gln Arg Ala Glu Glu Leu Val Gly Gln Glu Val Leu  
 100 105 110

Tyr Lys Leu Thr Ser Glu Asn Cys Glu His Phe Val Asn Xaa Leu Arg  
 115 120 125

Tyr Gly Val Ala Arg Ser Asp Gln Val Arg Asp Val Ile Ile Ala Ala  
 130 135 140

Ser Val Ala Gly Met Gly Leu Ala Ala Met Ser Leu Ile Gly Val Met  
 145 150 155 160

Phe Ser Arg Asn Lys Arg Gln Lys Gln  
 165

&lt;210&gt; 1342

&lt;211&gt; 115

<212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (5)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (6)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (25)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (49)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (102)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (114)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1342  
 Phe Pro Asn Pro Xaa Xaa Arg Gly Val Trp Ala Arg Gly Pro Pro Gly  
     1                    5                    10                    15  
 Leu Ser Phe Lys Gly Lys Thr Leu Xaa Gly Phe Gly Glu Ile Pro Pro  
           20                    25                    30  
 Pro Pro Gly Gly Ala Leu Cys Pro Lys Gly Lys Asn Phe Pro Gly Ala  
           35                    40                    45  
 Xaa Pro Glu Arg Pro Gln Lys Arg Phe Pro Pro Gly Lys Glu Ser Pro  
     50                    55                    60  
 Val Gly Ile Val Lys Thr Lys Arg Gly Ile Leu Lys Ala Gly Asn Ser  
     65                    70                    75                    80  
 Gly Cys Pro Pro Thr Ser Pro Asn Ile Pro Gly Gly Thr Trp Gly Leu  
           85                    90                    95

Glu Arg Cys Leu Gly Xaa Leu Arg Gln Ala Ser Gln Gly Trp Leu Val  
 100 105 110

Ser Xaa Arg  
 115

<210> 1343

<211> 342

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (24)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1343

Xaa Leu His Arg Gly Asp Asp Arg Ser Arg Thr Ser Gly Ser Pro Gly  
 1 5 10 15

Leu Gln Glu Phe Gly Arg Gly Xaa Ala Gly Val Gly Gly Arg Pro Arg  
 20 25 30

Arg Arg Arg Arg Lys Gly Ala Ala Ser Arg Ala Arg Leu Pro Phe Ser  
 35 40 45

Leu Ser Ile Met Asp Pro Ser Leu Leu Arg Glu Arg Glu Leu Phe Lys  
 50 55 60

Lys Arg Ala Leu Ser Thr Pro Val Val Glu Lys Arg Ser Ala Ser Ser  
 65 70 75 80

Glu Ser Ser Ser Ser Ser Ser Lys Lys Lys Lys Thr Lys Val Glu His  
 85 90 95

Gly Gly Ser Ser Gly Ser Lys Gln Asn Ser Asp His Ser Asn Gly Ser  
 100 105 110

Phe Asn Leu Lys Ala Leu Ser Gly Ser Ser Gly Tyr Lys Phe Gly Val  
 115 120 125

Leu Ala Lys Ile Val Asn Tyr Met Lys Thr Arg His Gln Arg Gly Asp  
 130 135 140



Thr His Pro Leu Thr Leu Asp Glu Ile Leu Asp Glu Thr Gln His Leu  
 145 150 155 160  
 Asp Ile Gly Leu Lys Gln Lys Gln Trp Leu Met Thr Glu Ala Leu Val  
 165 170 175  
 Asn Asn Pro Lys Ile Glu Val Ile Asp Gly Lys Tyr Ala Phe Lys Pro  
 180 185 190  
 Lys Tyr Asn Val Arg Asp Lys Lys Ala Leu Leu Arg Leu Leu Asp Gln  
 195 200 205  
 His Asp Gln Arg Gly Leu Gly Gly Ile Leu Leu Glu Asp Ile Glu Glu  
 210 215 220  
 Ala Leu Pro Asn Ser Gln Lys Ala Val Lys Ala Leu Gly Asp Gln Ile  
 225 230 235 240  
 Leu Phe Val Asn Arg Pro Asp Lys Lys Lys Ile Leu Phe Phe Asn Asp  
 245 250 255  
 Lys Ser Cys Gln Phe Ser Val Asp Glu Glu Phe Gln Lys Leu Trp Arg  
 260 265 270  
 Ser Val Thr Val Asp Ser Met Asp Glu Glu Lys Ile Glu Glu Tyr Leu  
 275 280 285  
 Lys Arg Gln Gly Ile Ser Ser Met Gln Glu Ser Gly Pro Lys Lys Val  
 290 295 300  
 Ala Pro Ile Gln Arg Arg Lys Lys Pro Ala Ser Gln Lys Lys Arg Arg  
 305 310 315 320  
 Phe Lys Thr His Asn Glu His Leu Ala Gly Val Leu Lys Asp Tyr Ser  
 325 330 335  
 Asp Ile Thr Ser Ser Lys  
 340

&lt;210&gt; 1344

&lt;211&gt; 310

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1344

Cys Gly Arg Arg Ser Ser Leu His Leu Leu Leu Gly Pro Pro Ser Leu  
 1 5 10 15

Pro Ser Ser His Phe Pro Ser Ser Gly Val Val Pro Ala Thr Leu Asp  
                   20                                  25                                  30

Ala Ala Ala Gly Thr Lys Glu Asp Pro Ala Ala Ala Arg Arg His Leu  
                   35                                  40                                  45

Arg Leu Leu Leu Arg Pro Ala Pro Gly Pro Arg Arg Arg His Gln Gly  
                   50                                  55                                  60

Ala Arg Leu Ser Leu Pro Gly Gly Leu Gly Pro Ala Ser Ser Cys Arg  
                   65                                  70                                  75                                  80

Leu Arg Ala Arg Thr Arg Leu Ser His Leu Gly Pro Cys Arg Gln Lys  
                                   85                                  90                                  95

Asn Met Ala Gln Glu Thr Asn Gln Thr Pro Gly Pro Met Leu Cys Ser  
                   100                                  105                                  110

Thr Gly Cys Gly Phe Tyr Gly Asn Pro Arg Thr Asn Gly Met Cys Ser  
                   115                                  120                                  125

Val Cys Tyr Lys Glu His Leu Gln Arg Gln Gln Asn Ser Gly Arg Met  
                   130                                  135                                  140

Ser Pro Met Gly Thr Ala Ser Gly Ser Asn Ser Pro Thr Ser Asp Ser  
                   145                                  150                                  155                                  160

Ala Ser Val Gln Arg Ala Asp Thr Ser Leu Asn Asn Cys Glu Gly Ala  
                                   165                                  170                                  175

Ala Gly Ser Thr Ser Glu Lys Ser Arg Asn Val Pro Val Ala Ala Leu  
                   180                                  185                                  190

Pro Val Thr Gln Gln Met Thr Glu Met Ser Ile Ser Arg Glu Asp Lys  
                   195                                  200                                  205

Ile Thr Thr Pro Lys Thr Glu Val Ser Glu Pro Val Val Thr Gln Pro  
                   210                                  215                                  220

Ser Pro Ser Val Ser Gln Pro Ser Thr Ser Gln Ser Glu Glu Lys Ala  
                   225                                  230                                  235                                  240

Pro Glu Leu Pro Lys Pro Lys Lys Asn Arg Cys Phe Met Cys Arg Lys  
                                   245                                  250                                  255

Lys Val Gly Leu Thr Gly Phe Asp Cys Arg Cys Gly Asn Leu Phe Cys  
                   260                                  265                                  270

Gly Leu His Arg Tyr Ser Asp Lys His Asn Cys Pro Tyr Asp Tyr Lys  
                   275                                  280                                  285

Ala Glu Ala Ala Ala Lys Ile Arg Lys Glu Asn Pro Val Val Val Ala  
290 295 300

Glu Lys Ile Gln Arg Ile  
305 310

<210> 1345

<211> 202

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (182)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1345

Arg Arg Ala Arg Ala His Pro Gly Xaa Arg Leu Trp Gly Arg Arg Arg  
1 5 10 15

Gly Pro Glu Pro Ser Thr Val Gly Arg Lys Ala Thr Lys Lys Thr Asp  
20 25 30

Lys Pro Arg Gln Glu Asp Lys Asp Asp Leu Asp Val Thr Glu Leu Thr  
35 40 45

Asn Glu Asp Leu Leu Asp Gln Leu Val Lys Tyr Gly Val Asn Pro Gly  
50 55 60

Pro Ile Val Gly Thr Thr Arg Lys Leu Tyr Glu Lys Lys Leu Leu Lys  
65 70 75 80

Leu Arg Glu Gln Gly Thr Glu Ser Arg Ser Ser Thr Pro Leu Pro Thr  
85 90 95

Ile Ser Ser Ser Ala Glu Asn Thr Arg Gln Asn Gly Ser Asn Asp Ser  
100 105 110

Asp Arg Tyr Ser Asp Asn Glu Glu Gly Lys Lys Lys Glu His Lys Lys  
115 120 125

Val Lys Ser Thr Arg Asp Ile Val Pro Phe Ser Glu Leu Gly Asn Tyr  
130 135 140

Ser Leu Trp Trp Trp Asp Phe Phe Arg Val Phe Leu Phe Leu Lys Ser  
 145 150 155 160

Pro Pro Val Leu Leu Trp Ala Val Pro Asn Tyr Arg Gln Leu Arg Lys  
 165 170 175

Tyr Ile Leu Leu Arg Xaa Thr Tyr Leu Gly Ser Leu Leu Leu Pro Gln  
 180 185 190

Thr Cys Leu Ala Gly Asp Ser Cys Arg Ser  
 195 200

<210> 1346

<211> 223

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (137)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1346

Val Ile Asp His Pro Arg Pro Arg Asp Thr Gln Phe Ile Val Ile Ile  
 1 5 10 15

Met Asn Asn Gln Lys Val Val Ala Val Leu Leu Gln Glu Cys Lys Gln  
 20 25 30

Val Leu Xaa Gln Leu Leu Leu Glu Ala Pro Asp Val Ser Glu Glu Asp  
 35 40 45

Lys Ser Glu Asp Gln Arg Cys Arg Ala Leu Leu Pro Ser Glu Leu Arg  
 50 55 60

Thr Leu Ile Gln Glu Ala Lys Glu Met Lys Trp Pro Phe Val Pro Glu  
 65 70 75 80

Lys Trp Gln Tyr Lys Gln Ala Val Gly Pro Glu Asp Lys Thr Asn Leu  
 85 90 95

Lys Asp Val Ile Gly Ala Gly Leu Gln Gln Leu Leu Ala Ser Leu Arg  
 100 105 110

Ala Ser Ile Leu Ala Arg Asp Cys Ala Ala Ala Ala Ala Ile Val Phe  
115 120 125

Leu Val Asp Arg Phe Leu Tyr Gly Xaa Asp Val Ser Gly Lys Leu Leu  
130 135 140

Gln Val Ala Lys Gly Leu His Lys Leu Gln Pro Ala Thr Pro Ile Ala  
145 150 155 160

Pro Gln Val Val Ile Arg Gln Ala Arg Ile Ser Val Asn Ser Gly Lys  
165 170 175

Leu Leu Lys Ala Glu Tyr Ile Leu Ser Ser Leu Ile Ser Asn Asn Gly  
180 185 190

Ala Thr Gly Thr Trp Leu Tyr Arg Asn Glu Ser Asp Lys Val Leu Val  
195 200 205

Gln Ser Val Cys Ile Gln Ile Arg Gly Gln Ile Leu Gln Lys Leu  
210 215 220

<210> 1347

<211> 744

<212> PRT

<213> Homo sapiens

<400> 1347

Leu Asp Arg Thr Ile Lys Val Trp Gln Leu Gly Ser Ser Ser Pro Asn  
1 5 10 15

Phe Thr Leu Glu Gly His Glu Lys Gly Val Asn Cys Ile Asp Tyr Tyr  
20 25 30

Ser Gly Gly Asp Lys Pro Tyr Leu Ile Ser Gly Ala Asp Asp Arg Leu  
35 40 45

Val Lys Ile Trp Asp Tyr Gln Asn Lys Thr Cys Val Gln Thr Leu Glu  
50 55 60

Gly His Ala Gln Asn Val Ser Cys Ala Ser Phe His Pro Glu Leu Pro  
65 70 75 80

Ile Ile Ile Thr Gly Ser Glu Asp Gly Thr Val Arg Ile Trp His Ser  
85 90 95

Ser Thr Tyr Arg Leu Glu Ser Thr Leu Asn Tyr Gly Met Glu Arg Val  
100 105 110

Trp Cys Val Ala Ser Leu Arg Gly Ser Asn Asn Val Ala Leu Gly Tyr

115	120	125
Asp Glu Gly Ser Ile Ile Val Lys Leu Gly Arg Glu Glu Pro Ala Met		
130	135	140
Ser Met Asp Ala Asn Gly Lys Ile Ile Trp Ala Lys His Ser Glu Val		
145	150	155 160
Gln Gln Ala Asn Leu Lys Ala Met Gly Asp Ala Glu Ile Lys Asp Gly		
	165 170	175
Glu Arg Leu Pro Leu Ala Val Lys Asp Met Gly Ser Cys Glu Ile Tyr		
	180 185	190
Pro Gln Thr Ile Gln His Asn Pro Asn Gly Arg Phe Val Val Val Cys		
	195 200	205
Gly Asp Gly Glu Tyr Ile Ile Tyr Thr Ala Met Ala Leu Arg Asn Lys		
	210 215	220
Ser Phe Gly Ser Ala Gln Glu Phe Ala Trp Ala His Asp Ser Ser Glu		
225	230 235	240
Tyr Ala Ile Arg Glu Ser Asn Ser Ile Val Lys Ile Phe Lys Asn Phe		
	245 250	255
Lys Glu Lys Lys Ser Phe Lys Pro Asp Phe Gly Ala Glu Ser Ile Tyr		
	260 265	270
Gly Gly Phe Leu Leu Gly Val Arg Ser Val Asn Gly Leu Ala Phe Tyr		
	275 280	285
Asp Trp Asp Asn Thr Glu Leu Ile Arg Arg Ile Glu Ile Gln Pro Lys		
	290 295	300
His Ile Phe Trp Ser Asp Ser Gly Glu Leu Val Cys Ile Ala Thr Glu		
305	310 315	320
Glu Ser Phe Phe Ile Leu Lys Tyr Leu Ser Glu Lys Val Leu Ala Ala		
	325 330	335
Gln Glu Thr His Glu Gly Val Thr Glu Asp Gly Ile Glu Asp Ala Phe		
	340 345	350
Glu Val Leu Gly Glu Ile Gln Glu Ile Val Lys Thr Gly Leu Trp Val		
	355 360	365
Gly Asp Cys Phe Ile Tyr Thr Ser Ser Val Asn Arg Leu Asn Tyr Tyr		
	370 375	380
Val Gly Gly Glu Ile Val Thr Ile Ala His Leu Asp Arg Thr Met Tyr		

385                      390                      395                      400  
Leu Leu Gly Tyr Ile Pro Lys Asp Asn Arg Leu Tyr Leu Gly Asp Lys  
                         405                      410                      415  
Glu Leu Asn Ile Ile Ser Tyr Ser Leu Leu Val Ser Val Leu Glu Tyr  
                         420                      425                      430  
Gln Thr Ala Val Met Arg Arg Asp Phe Ser Met Ala Asp Lys Val Leu  
                         435                      440                      445  
Pro Thr Ile Pro Lys Glu Gln Arg Thr Arg Val Ala His Phe Leu Glu  
                         450                      455                      460  
Lys Gln Gly Phe Lys Gln Gln Ala Leu Thr Val Ser Thr Asp Pro Glu  
465                      470                      475                      480  
His Arg Phe Glu Leu Ala Leu Gln Leu Gly Glu Leu Lys Ile Ala Tyr  
                         485                      490                      495  
Gln Leu Ala Val Glu Ala Glu Ser Glu Gln Lys Trp Lys Gln Leu Ala  
                         500                      505                      510  
Glu Leu Ala Ile Ser Lys Cys Gln Phe Gly Leu Ala Gln Glu Cys Leu  
                         515                      520                      525  
His His Ala Gln Asp Tyr Gly Gly Leu Leu Leu Leu Ala Thr Ala Ser  
                         530                      535                      540  
Gly Asn Ala Asn Met Val Asn Lys Leu Ala Glu Gly Ala Glu Arg Asp  
545                      550                      555                      560  
Gly Lys Asn Asn Val Ala Phe Met Ser Tyr Phe Leu Gln Gly Lys Val  
                         565                      570                      575  
Asp Ala Cys Leu Glu Leu Leu Ile Arg Thr Gly Arg Leu Pro Glu Ala  
                         580                      585                      590  
Ala Phe Leu Ala Arg Thr Tyr Leu Pro Ser Gln Val Ser Arg Val Val  
                         595                      600                      605  
Lys Leu Trp Arg Glu Asn Leu Ser Lys Val Asn Gln Lys Ala Ala Glu  
                         610                      615                      620  
Ser Leu Ala Asp Pro Thr Glu Tyr Glu Asn Leu Phe Pro Gly Leu Lys  
625                      630                      635                      640  
Glu Ala Phe Val Val Glu Glu Trp Val Lys Glu Thr His Ala Asp Leu  
                         645                      650                      655  
Trp Pro Ala Lys Gln Tyr Pro Leu Val Thr Pro Asn Glu Glu Arg Asn

660

665

670

Val Met Glu Glu Gly Lys Asp Phe Gln Pro Ser Arg Ser Thr Ala Gln  
 675 680 685

Gln Glu Leu Asp Gly Lys Pro Ala Ser Pro Thr Pro Val Ile Val Ala  
 690 695 700

Ser His Thr Ala Asn Lys Glu Glu Lys Ser Leu Leu Glu Leu Glu Val  
 705 710 715 720

Asp Leu Asp Asn Leu Glu Leu Glu Asp Ile Asp Thr Thr Asp Ile Asn  
 725 730 735

Leu Asp Glu Asp Ile Leu Asp Asp  
 740

&lt;210&gt; 1348

&lt;211&gt; 314

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (18)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (87)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1348

Asn Thr Val Val Met Lys Val Ala Glu Gln Thr Pro Leu Ser Ala Leu  
 1 5 10 15

Tyr Xaa Ala Ser Leu Ile Lys Glu Ala Gly Phe Pro Pro Gly Val Val  
 20 25 30

Asn Ile Ile Thr Gly Tyr Gly Pro Thr Ala Gly Ala Ala Ile Ala Gln  
 35 40 45

His Met Asp Val Asp Lys Val Ala Phe Thr Gly Ser Thr Glu Val Gly  
 50 55 60

His Leu Ile Gln Lys Ala Ala Gly Asp Ser Asn Leu Lys Arg Val Thr  
 65 70 75 80

Leu Glu Leu Gly Gly Lys Xaa Pro Ser Ile Val Leu Ala Asp Ala Asp



[illegible]

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<210> 1349
<211> 146
<212> PRT
<213> Homo sapiens
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&lt;400&gt; 1349

Arg Cys Pro Ile Ala Ser Glu Val Pro Trp Thr Ile Thr Glu Ala Glu  
1 5 10 15

Leu Arg Val Thr Leu Thr Val Glu Gly Lys Ser Ile Pro Cys Leu Ile  
20 25 30

Asp Thr Gly Ala Thr His Ser Thr Leu Pro Ser Phe Gln Gly Pro Val  
35 40 45

Ser Leu Ala Pro Ile Thr Val Val Gly Ile Asp Gly Gln Ala Ser Lys  
50 55 60

Pro Leu Lys Thr Pro Pro Leu Trp Cys Gln Leu Gly Gln His Ser Phe  
65 70 75 80

Met His Ser Phe Leu Val Ile Pro Thr Cys Pro Leu Pro Leu Leu Gly  
85 90 95

Arg Asn Ile Leu Thr Lys Leu Ser Ala Ser Leu Thr Ile Pro Gly Val  
100 105 110

Gln Leu His Leu Ile Ala Ala Leu Leu Pro Asn Pro Lys Pro Pro Leu  
115 120 125

Cys Pro Leu Thr Ser Pro Gln Tyr His Pro Leu Pro Gln Asp Leu Pro  
130 135 140

Ser Ala  
145

&lt;210&gt; 1350

&lt;211&gt; 296

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (53)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1350

Pro Thr Arg Pro Arg Thr Arg Gly Ala Ile Phe Ala Ala Arg Thr Arg  
1 5 10 15

Ser Glu Arg Leu Arg Glu Ser Glu Thr Leu Ser Ala Ser Ile Arg Arg  
20 25 30

Ala Asp Pro Ala Gly Ala Ala Ala Ala Met Asp Asp Arg Glu Asp Leu

35 40 45

Val Tyr Gln Ala Xaa Leu Ala Glu Gln Ala Glu Arg Tyr Asp Glu Met  
50 55 60

Val Glu Ser Met Lys Lys Val Ala Gly Met Asp Val Glu Leu Thr Val  
65 70 75 80

Glu Glu Arg Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala  
85 90 95

Arg Arg Ala Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu  
100 105 110

Asn Lys Gly Gly Glu Asp Lys Leu Lys Met Ile Arg Glu Tyr Arg Gln  
115 120 125

Met Val Glu Thr Glu Leu Lys Leu Ile Cys Cys Asp Ile Leu Asp Val  
130 135 140

Leu Asp Lys His Leu Ile Pro Ala Ala Asn Thr Gly Glu Ser Lys Val  
145 150 155 160

Phe Tyr Tyr Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe  
165 170 175

Ala Thr Gly Asn Asp Arg Lys Glu Ala Ala Glu Asn Ser Leu Val Ala  
180 185 190

Tyr Lys Ala Ala Ser Asp Ile Ala Met Thr Glu Leu Pro Pro Thr His  
195 200 205

Pro Ile Arg Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu  
210 215 220

Ile Leu Asn Ser Pro Asp Arg Ala Cys Arg Leu Ala Lys Ala Ala Phe  
225 230 235 240

Asp Asp Ala Ile Ala Glu Leu Asp Thr Leu Ser Glu Glu Ser Tyr Lys  
245 250 255

Asp Ser Thr Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp  
260 265 270

Thr Ser Asp Met Gln Gly Asp Gly Glu Glu Gln Asn Lys Glu Ala Leu  
275 280 285

Gln Asp Val Glu Asp Glu Asn Gln  
290 295

<210> 1351  
<211> 184  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (126)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (131)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (136)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (137)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (143)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (146)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (147)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (149)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (152)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (159)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (163)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1351

Gly Ser Ala Pro Glu Thr Ser Pro Glu Lys Cys Ser Ser Arg Ala Lys  
1 5 10 15

Ser Cys Lys Val Ile Arg Lys Asn Ile Val Lys Lys Cys Leu Glu Leu  
20 25 30

Phe Ser Glu Leu Ala Glu Asp Lys Glu Asn Tyr Lys Lys Phe Tyr Glu  
35 40 45

Ala Phe Ser Lys Asn Leu Lys Leu Gly Ile His Glu Asp Ser Thr Asn  
50 55 60

Arg Arg Arg Leu Ser Glu Leu Leu Arg Tyr His Thr Ser Gln Ser Gly  
65 70 75 80

Asp Glu Met Thr Ser Leu Ser Glu Tyr Val Ser Arg Met Lys Glu Thr  
85 90 95

Gln Lys Ser Ile Tyr Tyr Ile Thr Gly Glu Ser Lys Glu Gln Val Ala  
100 105 110

Asn Ser Ala Phe Val Glu Arg Val Arg Lys Arg Gly Phe Xaa Val Val  
115 120 125

Tyr Met Xaa Glu Pro Ile Asp Xaa Xaa Cys Val Gln Gln Leu Xaa Glu  
130 135 140

Phe Xaa Xaa Lys Xaa Leu Val Xaa Val Thr Lys Glu Val Trp Xaa Cys  
145 150 155 160

Leu Arg Xaa Arg Arg Glu Glu Glu Asp Gly Arg Glu Gln Gly Lys Phe  
165 170 175

Arg Pro Cys Ser Ser Glu Glu Ser  
180

&lt;210&gt; 1352

&lt;211&gt; 415

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1352

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Trp Ile Pro Arg Ala Ala Gly Ile Arg His Glu Leu His Leu Lys Glu
 1             5             10             15

Asp Gln Thr Glu Tyr Leu Glu Glu Arg Arg Val Lys Glu Val Val Lys
      20             25             30

Lys His Ser Gln Phe Ile Gly Tyr Pro Ile Thr Leu Tyr Leu Glu Lys
      35             40             45

Glu Arg Glu Lys Glu Ile Ser Asp Asp Glu Ala Glu Glu Glu Lys Gly
      50             55             60

Glu Lys Glu Glu Glu Asp Lys Asp Asp Glu Glu Lys Pro Lys Ile Glu
      65             70             75             80

Asp Val Gly Ser Asp Glu Glu Asp Asp Ser Gly Lys Asp Lys Lys Lys
      85             90             95

Lys Thr Lys Lys Ile Lys Glu Lys Tyr Ile Asp Gln Glu Glu Leu Asn
      100            105            110

Lys Thr Lys Pro Ile Trp Thr Arg Asn Pro Asp Asp Ile Thr Gln Glu
      115            120            125

Glu Tyr Gly Glu Phe Tyr Lys Ser Leu Thr Asn Asp Trp Glu Asp His
      130            135            140

Leu Ala Val Lys His Phe Ser Val Glu Gly Gln Leu Glu Phe Arg Ala
      145            150            155            160

Leu Leu Phe Ile Pro Arg Arg Ala Pro Phe Asp Leu Phe Glu Asn Lys
      165            170            175

Lys Lys Lys Asn Asn Ile Lys Leu Tyr Val Arg Arg Val Phe Ile Met
      180            185            190

Asp Ser Cys Asp Glu Leu Ile Pro Glu Tyr Leu Asn Phe Ile Arg Gly
      195            200            205

Val Val Asp Ser Glu Asp Leu Pro Leu Asn Ile Ser Arg Glu Met Leu
      210            215            220

Gln Gln Ser Lys Ile Leu Lys Val Ile Arg Lys Asn Ile Val Lys Lys
      225            230            235            240

Cys Leu Glu Leu Phe Ser Glu Leu Ala Glu Asp Lys Glu Asn Tyr Lys
      245            250            255

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Lys Phe Tyr Glu Ala Phe Ser Lys Asn Leu Lys Leu Gly Ile His Glu  
 260 265 270

Asp Ser Thr Asn Arg Arg Arg Leu Ser Glu Leu Leu Arg Tyr His Thr  
 275 280 285

Ser Gln Ser Gly Asp Glu Met Thr Ser Leu Ser Glu Tyr Val Ser Arg  
 290 295 300

Met Lys Glu Thr Gln Lys Ser Ile Tyr Tyr Ile Thr Gly Glu Ser Lys  
 305 310 315 320

Glu Gln Val Ala Asn Ser Ala Phe Val Glu Arg Val Arg Lys Arg Gly  
 325 330 335

Phe Glu Val Val Tyr Met Thr Glu Pro Ile Asp Glu Tyr Cys Val Gln  
 340 345 350

Gln Leu Lys Glu Phe Asp Gly Lys Ser Leu Val Ser Val Thr Lys Glu  
 355 360 365

Gly Leu Glu Leu Pro Glu Asp Glu Glu Glu Lys Lys Lys Met Glu Glu  
 370 375 380

Ser Lys Ala Lys Phe Glu Asn Leu Cys Lys Leu Met Gly Tyr Met Met  
 385 390 395 400

Ala Lys Lys His Trp Arg Ser Thr Leu Thr Thr Pro Phe Leu Glu  
 405 410 415

<210> 1353

<211> 256

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1353

Ser Pro Ile Ser Asp Gly Asn Asp Ala Xaa Leu Arg His Val Asn Ile  
 1 5 10 15

Asp His Leu His Val Gly Trp Tyr Gln Ser Thr Tyr Tyr Gly Ser Phe  
 20 25 30

Val Thr Arg Ala Leu Leu Asp Ser Gln Phe Ser Tyr Gln His Ala Ile

35	40	45
Glu Glu Ser Val Val Leu Ile Tyr Asp Pro Ile Lys Thr Ala Gln Gly		
50	55	60
Ser Leu Ser Leu Lys Ala Tyr Arg Leu Thr Pro Lys Leu Met Glu Val		
65	70	75
Cys Lys Glu Lys Asp Phe Ser Pro Glu Ala Leu Lys Lys Ala Asn Ile		
85	90	95
Thr Phe Glu Tyr Met Phe Glu Glu Val Pro Ile Val Ile Lys Asn Ser		
100	105	110
His Leu Ile Asn Val Leu Met Trp Glu Leu Glu Lys Lys Ser Ala Val		
115	120	125
Ala Asp Lys His Glu Leu Leu Ser Leu Ala Ser Ser Asn His Leu Gly		
130	135	140
Lys Asn Leu Gln Leu Leu Met Asp Arg Val Asp Glu Met Ser Gln Asp		
145	150	155
Ile Val Lys Tyr Asn Thr Tyr Met Arg Asn Thr Ser Lys Gln Gln Gln		
165	170	175
Gln Lys His Gln Tyr Gln Gln Arg Arg Gln Gln Glu Asn Met Gln Arg		
180	185	190
Gln Ser Arg Gly Glu Pro Pro Leu Pro Glu Glu Asp Leu Ser Lys Leu		
195	200	205
Phe Lys Pro Pro Gln Pro Pro Ala Arg Met Asp Ser Leu Leu Ile Ala		
210	215	220
Gly Gln Ile Asn Thr Tyr Cys Gln Asn Ile Lys Glu Phe Thr Ala Gln		
225	230	235
Asn Leu Gly Lys Leu Phe Met Ala Gln Ala Leu Gln Glu Tyr Asn Asn		
245	250	255

&lt;210&gt; 1354

&lt;211&gt; 210

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (192)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (208)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1354

Ile Met Lys Leu Leu Thr Arg Ala Gly Ser Phe Ser Arg Phe Tyr Ser  
1 5 10 15

Leu Lys Val Ala Pro Lys Val Lys Ala Thr Ala Ala Pro Ala Gly Ala  
20 25 30

Pro Pro Gln Pro Gln Asp Leu Glu Phe Thr Lys Leu Pro Asn Gly Leu  
35 40 45

Val Ile Ala Ser Leu Glu Asn Tyr Ser Pro Val Ser Arg Ile Gly Leu  
50 55 60

Phe Ile Lys Ala Gly Ser Arg Tyr Glu Asp Phe Ser Asn Leu Gly Thr  
65 70 75 80

Thr His Leu Leu Arg Leu Thr Ser Ser Leu Thr Thr Lys Gly Ala Ser  
85 90 95

Ser Phe Lys Ile Thr Arg Gly Ile Glu Ala Val Gly Gly Lys Leu Ser  
100 105 110

Val Thr Ala Thr Arg Glu Asn Met Ala Tyr Thr Val Glu Cys Leu Arg  
115 120 125

Gly Asp Val Asp Ile Leu Met Glu Phe Leu Leu Asn Val Thr Thr Ala  
130 135 140

Pro Glu Phe Arg Arg Trp Glu Val Ala Asp Leu Gln Pro Gln Leu Lys  
145 150 155 160

Ile Asp Lys Ala Val Ala Phe Gln Asn Pro Gln Thr His Val Ile Glu  
165 170 175

Asn Leu His Ala Ala Ala Tyr Arg Asn Ala Leu Ala Asn Pro Leu Xaa  
180 185 190

Cys Pro Asp Tyr Arg Ile Gly Lys Val Thr Ser Glu Glu Val Pro Xaa  
195 200 205

Lys Leu

210

&lt;210&gt; 1355

&lt;211&gt; 316

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (309)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1355

Ser Ser Ala Ser Leu Pro Gly Ala Val Ala Ala Leu Ser Pro Leu Arg  
1 5 10 15

Ile Met Ala Thr Ala Glu Val Leu Asn Ile Gly Lys Lys Leu Tyr Glu  
20 25 30

Gly Lys Thr Lys Glu Val Tyr Glu Leu Leu Asp Ser Pro Gly Lys Val  
35 40 45

Leu Leu Gln Ser Lys Asp Gln Ile Thr Ala Gly Asn Ala Ala Arg Lys  
50 55 60

Asn His Leu Glu Gly Lys Ala Ala Ile Ser Asn Lys Ile Thr Ser Cys  
65 70 75 80

Ile Phe Gln Leu Leu Gln Glu Ala Gly Ile Lys Thr Ala Phe Thr Arg  
85 90 95

Lys Cys Gly Glu Thr Ala Phe Ile Ala Pro Gln Cys Glu Met Ile Pro  
100 105 110

Ile Glu Trp Val Cys Arg Arg Ile Ala Thr Gly Ser Phe Leu Lys Arg  
115 120 125

Asn Pro Gly Val Lys Glu Gly Tyr Lys Phe Tyr Pro Pro Lys Val Glu  
130 135 140

Leu Phe Phe Lys Asp Asp Ala Asn Asn Asp Pro Gln Trp Ser Glu Glu  
145 150 155 160

Gln Leu Ile Ala Ala Lys Phe Cys Phe Ala Gly Leu Leu Ile Gly Gln  
165 170 175

Thr Glu Val Asp Ile Met Ser His Ala Thr Gln Ala Ile Phe Glu Ile  
180 185 190

Leu Glu Lys Ser Trp Leu Pro Gln Asn Cys Thr Leu Val Asp Met Lys  
195 200 205

Ile Glu Phe Gly Val Asp Val Thr Thr Lys Glu Ile Val Leu Ala Asp  
210 215 220

Val Ile Asp Asn Asp Ser Trp Arg Leu Trp Pro Ser Gly Asp Arg Ser  
225 230 235 240

Gln Gln Lys Asp Lys Gln Ser Tyr Arg Asp Leu Lys Glu Val Thr Pro  
245 250 255

Glu Gly Leu Gln Met Val Lys Lys Asn Phe Glu Trp Val Ala Glu Arg  
260 265 270

Val Glu Leu Leu Leu Lys Ser Glu Ser Gln Cys Arg Val Val Val Leu  
275 280 285

Met Gly Ser Thr Ser Asp Leu Gly His Cys Glu Lys Ile Lys Lys Ala  
290 295 300

Cys Gly Asn Phe Xaa His Ser Met Val Asn Phe Glu  
305 310 315

<210> 1356

<211> 368

<212> PRT

<213> Homo sapiens

<400> 1356

Pro Gly Ser Ala Cys Lys Ala Val Ser Ser Leu Pro Gln Glu Lys Met  
1 5 10 15

Ala Val Ala Val Arg Thr Leu Gln Glu Gln Leu Glu Lys Ala Lys Glu  
20 25 30

Ser Leu Lys Asn Val Asp Glu Asn Ile Arg Lys Leu Thr Gly Arg Asp  
35 40 45

Pro Asn Asp Val Arg Pro Ile Gln Ala Arg Leu Leu Ala Leu Ser Gly  
50 55 60

Pro Gly Gly Gly Arg Gly Arg Gly Ser Leu Leu Arg Arg Gly Phe  
65 70 75 80

Ser Asp Ser Gly Gly Gly Pro Pro Ala Lys Gln Arg Asp Leu Glu Gly  
85 90 95

Ala Val Ser Arg Leu Gly Gly Glu Arg Arg Thr Arg Arg Glu Ser Arg

100	105	110
Gln Glu Ser Asp Pro Glu Asp Asp Asp Val Lys Lys Pro Ala Leu Gln		
115	120	125
Ser Ser Val Val Ala Thr Ser Lys Glu Arg Thr Arg Arg Asp Leu Ile		
130	135	140
Gln Asp Gln Asn Met Asp Glu Lys Gly Lys Gln Arg Asn Arg Arg Ile		
145	150	155
Phe Gly Leu Leu Met Gly Thr Leu Gln Lys Phe Lys Gln Glu Ser Thr		
165	170	175
Val Ala Thr Glu Arg Gln Lys Arg Arg Gln Glu Ile Glu Gln Lys Leu		
180	185	190
Glu Val Gln Ala Glu Glu Glu Arg Lys Gln Val Glu Asn Glu Arg Arg		
195	200	205
Glu Leu Phe Glu Glu Arg Arg Ala Lys Gln Thr Glu Leu Arg Leu Leu		
210	215	220
Glu Gln Lys Val Glu Leu Ala Gln Leu Gln Glu Glu Trp Asn Glu His		
225	230	235
Asn Ala Lys Ile Ile Lys Tyr Ile Arg Thr Lys Thr Lys Pro His Leu		
245	250	255
Phe Tyr Ile Pro Gly Arg Met Cys Pro Ala Thr Gln Lys Leu Ile Glu		
260	265	270
Glu Ser Gln Arg Lys Met Asn Ala Leu Phe Glu Gly Arg Arg Ile Glu		
275	280	285
Phe Ala Glu Gln Ile Asn Lys Met Glu Ala Arg Pro Arg Arg Gln Ser		
290	295	300
Met Lys Glu Lys Glu His Gln Val Val Arg Asn Glu Glu Gln Lys Ala		
305	310	315
Glu Gln Glu Glu Gly Lys Val Ala Gln Arg Glu Glu Glu Leu Glu Glu		
325	330	335
Thr Gly Asn Gln His Asn Asp Val Glu Lys Lys Glu Lys Lys Gly Lys		
340	345	350
Glu Glu Lys Lys Glu Arg Lys Lys Arg Lys Glu Arg Lys Glu Lys Lys		
355	360	365

&lt;210&gt; 1357

&lt;211&gt; 201

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1357

Ala Leu Ile Met Ser Phe Ile Phe Glu Trp Ile Tyr Asn Gly Phe Ser  
1 5 10 15

Ser Val Leu Gln Phe Leu Gly Leu Tyr Lys Lys Ser Gly Lys Leu Val  
20 25 30

Phe Leu Gly Leu Asp Asn Ala Gly Lys Thr Thr Leu Leu His Met Leu  
35 40 45

Lys Asp Asp Arg Leu Gly Gln His Val Pro Thr Leu His Pro Thr Ser  
50 55 60

Glu Glu Leu Thr Ile Ala Gly Met Thr Phe Thr Thr Phe Asp Leu Gly  
65 70 75 80

Gly His Glu Gln Ala Arg Arg Val Trp Lys Asn Tyr Leu Pro Ala Ile  
85 90 95

Asn Gly Ile Val Phe Leu Val Asp Cys Ala Asp His Ser Arg Leu Val  
100 105 110

Glu Ser Lys Val Glu Leu Asn Ala Leu Met Thr Asp Glu Thr Ile Ser  
115 120 125

Asn Val Pro Ile Leu Ile Leu Gly Asn Lys Ile Asp Arg Thr Asp Ala  
130 135 140

Ile Ser Glu Glu Lys Leu Arg Glu Ile Phe Gly Leu Tyr Gly Gln Thr  
145 150 155 160

Thr Gly Lys Gly Asn Val Thr Leu Lys Glu Leu Asn Ala Arg Pro Met  
165 170 175

Glu Val Phe Met Cys Ser Val Leu Lys Arg Gln Gly Tyr Gly Glu Gly  
180 185 190

Phe Arg Trp Leu Ser Gln Tyr Ile Asp  
195 200

<210> 1358  
 <211> 224  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (71)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (129)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (169)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (196)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (221)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1358  
 Val Ser Gln Cys Ala Ala Arg Tyr Gly Pro Thr Gly Pro Arg Gly Arg  
 1 5 10 15

Arg Arg His Gly Ala Val Phe Asp Leu Asp Leu Glu Thr Glu Glu Gly  
 20 25 30

Ser Glu Gly Glu Gly Glu Pro Glu Leu Ser Pro Ala Asp Ala Cys Pro  
 35 40 45

Leu Ala Glu Leu Arg Ala Ala Gly Leu Glu Pro Val Gly His Tyr Glu  
 50 55 60

Glu Val Phe Gln Val Arg Xaa Val Gln Gly Thr Asn Leu Gly Lys Ile  
 65 70 75 80

Tyr Ala Met Lys Val Leu Arg Lys Ala Lys Ile Val Arg Asn Ala Lys  
 85 90 95

Asp Thr Ala His Thr Arg Ala Glu Arg Asn Ile Leu Glu Ser Val Lys  
 100 105 110

His Pro Phe Ile Val Glu Leu Ala Tyr Ala Phe Gln Thr Gly Gly Lys  
115 120 125

Xaa Tyr Leu Ile Leu Glu Cys Leu Ser Gly Gly Glu Leu Phe Thr His  
130 135 140

Leu Gly Ala Arg Gly His Leu Pro Gly Lys Ile Arg Pro Ala Ser Thr  
145 150 155 160

Trp Leu Arg Ser Arg Trp Pro Trp Xaa Ile Ser Thr Pro Arg Ala Ser  
165 170 175

Ser Thr Gly Asp Leu Lys Pro Glu Glu His His Gly Ser Ala Ala Arg  
180 185 190

Ala His Ile Xaa Thr Asp Arg Leu Leu Asp Phe Trp Gln Gly Val Leu  
195 200 205

Phe His Gly Gly Arg Pro Ser Ile Asp Asn Phe Leu Xaa Ala Thr Ile  
210 215 220

<210> 1359  
<211> 336  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (225)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (230)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1359  
Gly Gly Arg Pro Glu Thr Glu Lys Gly Glu Ser Gly Ser Phe Pro Ala  
1 5 10 15

Arg Arg Thr Phe Glu Val Glu Lys Arg Thr Pro Gly Thr Cys Ala Gln  
20 25 30

His Trp Asp Phe Leu Asp Ser Thr Met Thr Leu Asn Asn Val Thr Met  
35 40 45

Arg Gln Gly Thr Val Gly Met Gln Pro Gln Gln Gln Arg Trp Ser Ile  
50 55 60

Pro Ala Asp Gly Arg His Leu Met Val Gln Lys Glu Pro His Gln Tyr  
65 70 75 80

Ser His Arg Asn Arg His Ser Ala Thr Pro Glu Asp His Cys Arg Arg  
85 90 95

Ser Trp Ser Ser Asp Ser Thr Asp Ser Val Ile Ser Ser Glu Ser Gly  
100 105 110

Asn Thr Tyr Tyr Arg Val Val Leu Ile Gly Glu Gln Gly Val Gly Lys  
115 120 125

Ser Thr Leu Ala Asn Ile Phe Ala Gly Val His Asp Ser Met Asp Ser  
130 135 140

Asp Cys Glu Val Leu Gly Glu Asp Thr Tyr Glu Arg Thr Leu Met Val  
145 150 155 160

Asp Gly Glu Ser Ala Thr Ile Ile Leu Leu Asp Met Trp Glu Asn Lys  
165 170 175

Gly Glu Asn Glu Trp Leu His Asp His Cys Met Gln Val Gly Asp Ala  
180 185 190

Tyr Leu Ile Val Tyr Ser Ile Thr Asp Arg Ala Ser Phe Glu Lys Ala  
195 200 205

Ser Glu Leu Arg Ile Gln Leu Arg Arg Ala Arg Gln Thr Glu Asp Ile  
210 215 220

Xaa Ile Ile Leu Val Xaa Asn Lys Ser Asp Leu Val Arg Cys Arg Glu  
225 230 235 240

Val Ser Val Ser Glu Gly Arg Ala Cys Ala Val Val Phe Asp Cys Lys  
245 250 255

Phe Ile Glu Thr Ser Ala Ala Val Gln His Asn Val Lys Glu Leu Phe  
260 265 270

Glu Gly Ile Val Arg Gln Val Arg Leu Arg Arg Ser Ser Lys Glu Lys  
275 280 285

Asn Glu Arg Arg Leu Ala Tyr Gln Lys Arg Lys Glu Ser Met Pro Arg  
290 295 300

Lys Ala Arg Arg Phe Trp Gly Lys Ile Val Ala Lys Asn Asn Lys Asn  
305 310 315 320



Met Ala Phe Lys Leu Lys Ser Lys Ser Cys His Asp Leu Ser Val Leu  
 325 330 335

<210> 1360

<211> 344

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1360

Thr Xaa Asn Leu Gln Arg Phe Gly Met Asn Gly Gln Met Leu Cys Asn  
 1 5 10 15

Leu Gly Lys Glu Arg Phe Leu Glu Leu Ala Pro Asp Phe Val Gly Asp  
 20 25 30

Ile Leu Trp Glu His Leu Glu Gln Met Ile Lys Glu Asn Gln Glu Lys  
 35 40 45

Thr Glu Asp Gln Tyr Glu Glu Asn Ser His Leu Thr Ser Val Pro His  
 50 55 60

Trp Ile Asn Ser Asn Thr Leu Gly Phe Gly Thr Glu Gln Ala Pro Tyr  
 65 70 75 80

Gly Met Gln Thr Gln Asn Tyr Pro Lys Gly Gly Leu Leu Asp Ser Met  
 85 90 95

Cys Pro Ala Ser Thr Pro Ser Val Leu Ser Ser Glu Gln Glu Phe Gln  
 100 105 110

Met Phe Pro Lys Ser Arg Leu Ser Ser Val Ser Val Thr Tyr Cys Ser  
 115 120 125

Val Ser Gln Asp Phe Pro Gly Ser Asn Leu Asn Leu Leu Thr Asn Asn  
 130 135 140

Ser Gly Thr Pro Lys Asp His Asp Ser Pro Glu Asn Gly Ala Asp Ser  
 145 150 155 160

Phe Glu Ser Ser Asp Ser Leu Leu Gln Ser Trp Asn Ser Gln Ser Ser

165

170

175

Leu Leu Asp Val Gln Arg Val Pro Ser Phe Glu Ser Phe Glu Asp Asp  
 180 185 190

Cys Ser Gln Ser Leu Cys Leu Asn Lys Pro Thr Met Ser Phe Lys Asp  
 195 200 205

Tyr Ile Gln Glu Arg Ser Asp Pro Val Glu Gln Gly Lys Pro Val Ile  
 210 215 220

Pro Ala Ala Val Leu Ala Gly Phe Thr Gly Ser Gly Pro Ile Gln Leu  
 225 230 235 240

Trp Gln Phe Leu Leu Glu Leu Leu Ser Asp Lys Ser Cys Gln Ser Phe  
 245 250 255

Ile Ser Trp Thr Gly Asp Gly Trp Glu Phe Lys Leu Ala Asp Pro Asp  
 260 265 270

Glu Val Ala Arg Arg Trp Gly Lys Arg Lys Asn Lys Pro Lys Met Asn  
 275 280 285

Tyr Glu Lys Leu Ser Arg Gly Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile  
 290 295 300

Ile His Lys Thr Ser Gly Lys Arg Tyr Val Tyr Arg Phe Val Cys Asp  
 305 310 315 320

Leu Gln Asn Leu Leu Gly Phe Thr Pro Glu Glu Leu His Ala Ile Leu  
 325 330 335

Gly Val Gln Pro Asp Thr Glu Asp  
 340

&lt;210&gt; 1361

&lt;211&gt; 137

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1361

Ala Ser Ala His Thr Cys Thr Pro Pro Gly His Ser Thr Met Pro Ala  
 1 5 10 15

Cys Arg Leu Gly Pro Leu Ala Ala Ala Leu Leu Leu Ser Leu Leu Leu  
 20 25 30

Phe Gly Phe Thr Leu Val Ser Gly Thr Gly Ala Glu Lys Thr Gly Val  
 35 40 45

Cys Pro Glu Leu Gln Ala Asp Gln Asn Cys Thr Gln Glu Cys Val Ser  
50 55 60

Asp Ser Glu Cys Ala Asp Asn Leu Lys Cys Cys Ser Ala Gly Cys Ala  
65 70 75 80

Thr Phe Cys Ser Leu Pro Asn Asp Lys Glu Gly Ser Cys Pro Gln Val  
85 90 95

Asn Ile Asn Phe Pro Gln Leu Gly Leu Cys Arg Asp Gln Cys Gln Val  
100 105 110

Asp Ser Gln Cys Pro Gly Gln Met Lys Cys Cys Arg Asn Gly Cys Gly  
115 120 125

Lys Val Ser Cys Val Thr Pro Asn Phe  
130 135

<210> 1362

<211> 162

<212> PRT

<213> Homo sapiens

<400> 1362

Thr Lys Leu Val Met Met Gln Lys Leu Leu Lys Cys Ser Arg Leu Val  
1 5 10 15

Leu Ala Leu Ala Leu Ile Leu Val Leu Glu Ser Ser Val Gln Gly Tyr  
20 25 30

Pro Thr Gln Arg Ala Arg Tyr Gln Trp Val Arg Cys Asn Pro Asp Ser  
35 40 45

Asn Ser Ala Asn Cys Leu Glu Glu Lys Gly Pro Met Phe Glu Leu Leu  
50 55 60

Pro Gly Glu Ser Asn Lys Ile Pro Arg Leu Arg Thr Asp Leu Phe Pro  
65 70 75 80

Lys Thr Arg Ile Gln Asp Leu Asn Arg Ile Phe Pro Leu Ser Glu Asp  
85 90 95

Tyr Ser Gly Ser Gly Phe Gly Ser Gly Ser Gly Ser Gly Ser Gly Ser  
100 105 110

Gly Ser Gly Phe Leu Thr Glu Met Glu Gln Asp Tyr Gln Leu Val Asp  
115 120 125

Glu Ser Asp Ala Phe His Asp Asn Leu Arg Ser Leu Asp Arg Asn Leu  
 130 135 140

Pro Ser Asp Ser Gln Asp Leu Gly Gln His Gly Leu Glu Glu Asp Phe  
 145 150 155 160

Met Leu

<210> 1363

<211> 113

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (106)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1363

Thr Pro Thr Pro Phe Gly Ser Ala Arg Ala Pro Gln Ala Arg Pro Gly  
 1 5 10 15

Arg Arg Asp Gly Arg Met Ser Gly Gly Arg Arg Lys Glu Glu Pro Pro  
 20 25 30

Gln Pro Gln Leu Ala Asn Gly Ala Leu Lys Val Ser Val Trp Ser Lys  
 35 40 45

Val Leu Arg Ser Asp Ala Ala Trp Glu Asp Lys Asp Glu Phe Leu Asp  
 50 55 60

Val Ile Tyr Trp Phe Arg Gln Ile Ile Ala Val Val Leu Gly Val Ile  
 65 70 75 80

Leu Gly Ser Phe Ala Ile Thr Arg Val Leu Gly Asn Ser Arg Ile Leu  
 85 90 95

Pro Asp Gln Cys Lys Ser Pro Cys Thr Xaa Thr Ser Ala Ile Thr Thr  
 100 105 110

Asp

<210> 1364

<211> 217

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1364

Xaa Gly Gly Arg Ser Ser Ser Ser Thr Met Ser Thr Gly Gly Asp Phe  
1 5 10 15

Gly Asn Pro Leu Arg Lys Phe Lys Leu Val Phe Leu Gly Glu Gln Ser  
20 25 30

Xaa Gly Lys Thr Ser Leu Ile Thr Arg Phe Met Tyr Asp Ser Phe Asp  
35 40 45

Asn Thr Tyr Gln Ala Thr Ile Gly Ile Asp Phe Leu Ser Lys Thr Met  
50 55 60

Tyr Leu Glu Asp Arg Thr Val Arg Leu Gln Leu Trp Asp Thr Ala Gly  
65 70 75 80

Gln Glu Arg Phe Arg Ser Leu Ile Pro Ser Tyr Ile Arg Asp Ser Thr  
85 90 95

Val Ala Val Val Val Tyr Asp Ile Thr Asn Val Asn Ser Phe Gln Gln  
100 105 110

Thr Thr Lys Trp Ile Asp Asp Val Arg Thr Glu Arg Gly Ser Asp Val  
115 120 125

Ile Ile Met Leu Val Gly Asn Lys Thr Asp Leu Ala Asp Lys Arg Gln  
130 135 140

Val Ser Ile Glu Glu Gly Glu Arg Lys Ala Lys Glu Leu Asn Val Met  
145 150 155 160

Phe Ile Glu Thr Ser Ala Lys Ala Gly Tyr Asn Val Lys Gln Leu Phe  
165 170 175

Arg Arg Val Ala Ala Ala Leu Pro Gly Met Glu Ser Thr Gln Asp Arg  
180 185 190

Ser Arg Glu Asp Met Ile Asp Ile Lys Leu Glu Lys Pro Gln Glu Gln  
195 200 205

Pro Val Ser Glu Gly Gly Cys Ser Cys  
210 215

<210> 1365  
<211> 103  
<212> PRT  
<213> Homo sapiens

<400> 1365  
Lys Ser Leu Asp Ser Val Glu Leu Ser Arg Ser Phe Thr Ile Tyr Ser  
1 5 10 15  
Ser Val Cys Lys Leu Tyr Leu Leu Tyr Ser Gln Ser Ile Phe Thr Val  
20 25 30  
Leu Thr Ile Asp Ser Phe Pro Leu Leu Ile Phe Phe Phe Val Asn Gly  
35 40 45  
Ser Cys Asp Phe Arg Trp Gly Ile Phe Ser Ser Pro Lys Arg Ile Asp  
50 55 60  
Ser Phe Ser Arg Phe Ile Ile Ile Asp Cys Gln Glu Arg Thr Leu Gln  
65 70 75 80  
Gln Gly Cys Thr Leu Asn Ala Val Asp Gly Leu Ser Ser Arg Ile Tyr  
85 90 95  
Arg Leu Gly Leu Met Pro Met  
100

<210> 1366  
<211> 73  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (18)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (46)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1366

Arg His Cys Met Val Ser Ala Val Val Pro Leu Phe Ile Ser Pro Pro  
1 5 10 15

Asp Xaa Phe Ile Pro His Leu Ile Phe Phe Leu Ala Ala Phe Asn Glu  
20 25 30

Ser Phe Ile Leu Glu Thr Leu Tyr Ile Phe Gly Phe His Xaa Thr Ile  
35 40 45

Leu Thr Leu Phe Cys Pro Val Thr Phe Leu Lys Lys Thr Lys Thr Lys  
50 55 60

Asn Pro Phe Xaa Leu Phe Lys Phe Trp  
65 70

<210> 1367

<211> 238

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (199)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (202)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (211)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (229)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1367

Gly Ile Asp Pro Arg Val Arg Leu Ala Pro Leu Gly Leu Gln Val Ser  
1 5 10 15

Val Glu Gln Arg Thr Pro Val S r Val Pro Gln Met Gly Phe Val Lys  
                   20                  25                  30  
 Val Val Lys Asn Lys Ala Tyr Phe Lys Arg Tyr Gln Val Lys Phe Arg  
           35                  40                  45  
 Arg Arg Arg Glu Gly Lys Thr Asp Tyr Tyr Ala Arg Lys Arg Leu Val  
       50                  55                  60  
 Ile Gln Asp Lys Asn Lys Tyr Asn Thr Pro Lys Tyr Arg Met Ile Val  
   65                  70                  75                  80  
 Arg Val Thr Asn Arg Asp Ile Ile Cys Gln Ile Ala Tyr Ala Arg Ile  
                   85                  90                  95  
 Glu Gly Asp Met Ile Val Cys Ala Ala Tyr Ala His Glu Leu Pro Lys  
           100                  105                  110  
 Tyr Gly Val Lys Val Gly Leu Thr Asn Tyr Ala Ala Ala Tyr Cys Thr  
       115                  120                  125  
 Gly Leu Leu Leu Ala Arg Arg Leu Leu Asn Arg Phe Gly Met Asp Lys  
       130                  135                  140  
 Ile Tyr Glu Gly Gln Val Glu Val Thr Gly Asp Glu Tyr Asn Val Glu  
   145                  150                  155                  160  
 Ser Ile Asp Gly Gln Pro Gly Ala Phe Thr Cys Tyr Leu Asp Ala Gly  
           165                  170                  175  
 Leu Ala Arg Thr Thr Thr Gly Asn Lys Val Phe Gly Ala Leu Lys Gly  
       180                  185                  190  
 Ala Val Asp Gly Gly Leu Xaa Ile Pro Xaa Ser Thr Lys Arg Phe Pro  
       195                  200                  205  
 Gly Tyr Xaa Ser Glu Ser Lys Glu Phe Asn Ala Glu Val His Arg Lys  
       210                  215                  220  
 His Ile Met Gly Xaa Glu Trp Leu Gln Ile Thr Cys Ala Thr  
   225                  230                  235

&lt;210&gt; 1368

&lt;211&gt; 173

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE



<222> (149)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (150)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1368

Gly Asp Ser Gln Gly Pro Ala Ser Asp Trp Arg Val Arg Asp Leu Arg  
1 5 10 15

Pro Val Trp Gly Arg Trp Arg Pro Ala Gln His Leu Lys Ile Thr Asp  
20 25 30

Ser Ala Gly His Ile Leu Tyr Ser Lys Glu Asp Ala Thr Lys Gly Lys  
35 40 45

Phe Ala Phe Thr Thr Glu Asp Tyr Asp Met Phe Glu Val Cys Phe Glu  
50 55 60

Ser Lys Gly Thr Gly Arg Ile Pro Asp Gln Leu Val Ile Leu Asp Met  
65 70 75 80

Lys His Gly Val Glu Ala Lys Asn Tyr Glu Glu Ile Ala Lys Val Glu  
85 90 95

Lys Leu Lys Pro Leu Glu Val Glu Leu Arg Arg Leu Glu Asp Leu Ser  
100 105 110

Glu Ser Ile Val Asn Asp Phe Ala Tyr Met Lys Lys Arg Glu Glu Glu  
115 120 125

Met Arg Asp Thr Asn Glu Ser Thr Asn Thr Arg Val Leu Tyr Phe Ser  
130 135 140

Ile Phe Ser Met Xaa Xaa Leu Ile Gly Leu Ala Thr Trp Gln Val Phe  
145 150 155 160

Tyr Leu Arg Arg Phe Phe Lys Ala Lys Lys Leu Ile Glu  
165 170

<210> 1369

<211> 98

<212> PRT

<213> Homo sapiens

<400> 1369

Leu Cys Tyr Leu Asp Ile Cys Gly Lys Ala Glu Ser Phe Leu Thr Val

1                      5                      10                      15  
 Lys Ala Glu Val Ser Thr Gly Gly Asn Leu Leu Val Val Ser Pro Thr  
                     20                      25                      30  
 Thr Leu Pro Arg Val Leu Ser Thr Lys Glu Val Lys Arg Thr Glu Lys  
                     35                      40                      45  
 Glu Ile Ser Ile Ser Ala Ala Arg Ala Gly Ile Cys Leu Pro Asp Ser  
                     50                      55                      60  
 Leu Cys Phe Leu Phe His Arg His Pro Phe Arg Arg Glu Leu His Gln  
                     65                      70                      75                      80  
 Phe Ile Met Arg Val Arg Glu Ala Lys Ala Leu Arg Cys Val Gln Gly  
                     85                      90                      95  
 Val Thr

&lt;210&gt; 1370

&lt;211&gt; 168

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (127)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1370

Pro Ala Leu Gly Arg Phe Cys Gly Ser Lys Lys Pro Glu Pro Val Leu  
                     1                      5                      10                      15  
 Ala Thr Gly Ser Arg Met Phe Leu Arg Phe Tyr Ser Asp Asn Ser Val  
                     20                      25                      30  
 Gln Arg Lys Gly Phe Gln Ala Ser His Ala Thr Glu Cys Gly Gly Gln  
                     35                      40                      45  
 Val Arg Ala Asp Val Lys Thr Lys Asp Leu Tyr Ser His Ala Gln Phe  
                     50                      55                      60  
 Gly Asp Asn Asn Tyr Pro Gly Gly Val Asp Cys Glu Trp Val Ile Val  
                     65                      70                      75                      80  
 Ala Glu Glu Gly Tyr Gly Val Glu Leu Val Phe Gln Thr Phe Glu Val  
                     85                      90                      95

Glu Glu Glu Thr Asp Cys Gly Tyr Asp Tyr Met Glu Leu Phe Asp Gly  
100 105 110

Tyr Asp Ser Thr Ala Pro Arg Leu Gly Arg Tyr Cys Gly Ser Xaa Pro  
115 120 125

Pro Glu Glu Val Tyr Ser Ala Gly Asp Ser Ala Val Ser His Ser Ile  
130 135 140

His His Thr Lys Lys Gly Phe His Leu Arg Tyr Thr Ser Thr Lys Phe  
145 150 155 160

Gln Asp Thr Leu His Ser Arg Lys  
165

<210> 1371

<211> 141

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (131)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (139)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1371

Phe Asp Arg Gly Ala Arg Leu Pro Asp Gly Leu Gly Leu Trp Ser Leu  
1 5 10 15

Arg Gly Pro Leu Arg Arg Leu Val Leu Phe Tyr Gln Gly Lys Leu Cys  
20 25 30

Ser Met Ala Gly Asn Phe Trp Gln Ser Ser His Tyr Leu Gln Trp Ile  
35 40 45

Leu Asp Lys Gln Asp Leu Leu Lys Glu Arg Gln Lys Asp Leu Lys Phe  
50 55 60

Leu Ser Glu Glu Glu Tyr Trp Lys Leu Gln Ile Phe Phe Thr Asn Val  
65 70 75 80

Ile Gln Ala Leu Gly Glu His Leu Lys Leu Arg Gln Gln Val Ile Ala  
85 90 95

Thr Ala Thr Val Tyr Phe Lys Arg Phe Tyr Ala Arg Tyr Ser Leu Lys  
100 105 110

Ser Ile Asp Pro Val Leu Met Ala Pro Thr Cys Val Phe Leu Ala Ser  
115 120 125

Lys Val Xaa Gly Lys Lys Ile Phe Phe Phe Xaa Gly Gly  
130 135 140

<210> 1372

<211> 327

<212> PRT

<213> Homo sapiens

<400> 1372

Lys Gly Val Phe Gly Phe Arg Trp Gly Leu Ala Ala Pro Glu Pro Ser  
1 5 10 15

Met Ala Ser Ser Arg Ala Ser Ser Thr Ala Thr Lys Thr Lys Ala Pro  
20 25 30

Asp Asp Leu Val Ala Pro Val Val Lys Lys Pro His Ile Tyr Tyr Gly  
35 40 45

Ser Leu Glu Glu Lys Glu Arg Glu Arg Leu Ala Lys Gly Glu Ser Gly  
50 55 60

Ile Leu Gly Lys Asp Gly Leu Lys Ala Gly Ile Glu Ala Gly Asn Ile  
65 70 75 80

Asn Ile Thr Ser Gly Glu Val Phe Glu Ile Glu Glu His Ile Ser Glu  
85 90 95

Arg Gln Ala Glu Val Leu Ala Glu Phe Glu Arg Arg Lys Arg Ala Arg  
100 105 110

Gln Ile Asn Val Ser Thr Asp Asp Ser Glu Val Lys Ala Cys Leu Arg  
115 120 125

Ala Leu Gly Glu Pro Ile Thr Leu Phe Gly Glu Gly Pro Ala Glu Arg  
130 135 140

Arg Glu Arg Leu Arg Asn Ile Leu Ser Val Val Gly Thr Asp Ala Leu  
145 150 155 160

Lys Lys Thr Lys Lys Asp Asp Glu Lys Ser Lys Lys Ser Lys Glu Glu  
165 170 175

Tyr Gln Gln Thr Trp Tyr His Glu Gly Pro Asn Ser Leu Lys Val Ala

180

185

190

Arg Leu Trp Ile Ala Asn Tyr Ser Leu Pro Arg Ala Met Lys Arg Leu  
195 200 205

Glu Glu Ala Arg Leu His Lys Glu Ile Pro Glu Thr Thr Arg Thr Ser  
210 215 220

Gln Met Gln Glu Leu His Lys Ser Leu Arg Ser Leu Asn Asn Phe Cys  
225 230 235 240

Ser Gln Ile Gly Asp Asp Arg Pro Ile Ser Tyr Cys His Phe Ser Pro  
245 250 255

Asn Ser Lys Met Leu Ala Thr Ala Cys Trp Ser Gly Leu Cys Lys Leu  
260 265 270

Trp Ser Val Pro Asp Cys Asn Leu Leu His Thr Leu Arg Gly His Asn  
275 280 285

Thr Asn Val Gly Ala Ile Val Phe His Pro Lys Ser Thr Val Ser Leu  
290 295 300

Asp Pro Lys Asp Val Asn Leu Ala Ser Cys Ala Ala Asp Gly Ser Val  
305 310 315 320

Lys Leu Trp Ser Leu Asp Arg  
325

&lt;210&gt; 1373

&lt;211&gt; 47

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (15)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (22)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1373

Gly Thr His His Gln Ala Gln Pro Asn Phe Val Phe Phe Leu Xaa Arg  
1 5 10 15

Trp Gly Phe Ile Thr Xaa Pro Arg Leu Ile Ser Asn Leu Trp Ala Gln

20

25

30

Ala Ile His Ser Pro Arg Pro Pro Lys Met Leu Gly Leu Gln Ala  
35 40 45

&lt;210&gt; 1374

&lt;211&gt; 114

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1374

Ala Ala Thr Lys Val Thr Leu Ser Leu Asp Thr Ala Ser Val Leu Ser  
1 5 10 15

Pro Cys Phe Thr Gly His Ser Ile Ser Leu Gln Pro Ser Leu Cys Ala  
20 25 30

Ser Ala Ile Phe Thr His His Gly Ala Glu Val Arg Arg Gly Ser Leu  
35 40 45

Gly Ile Trp Arg Pro Val Lys Asp Gln Ala Trp Arg Ala Gln Gly Pro  
50 55 60

Thr Trp Ala Ser Ser Arg Gly Ala Pro Lys Gly Gln Glu His Pro Lys  
65 70 75 80

Arg Arg Glu Gly Ser Gln Pro Pro Leu Thr Ala Ser Leu Gln Pro Ser  
85 90 95

Pro Thr Leu Ile Thr Ile Ser Leu Gln Ala Phe Cys Leu Arg Asp Val  
100 105 110

Ala Pro

&lt;210&gt; 1375

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (92)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (93)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1375

Glu Ala Val Asn Glu Gln Leu Ser Ser Glu Arg Ser Asn Leu Ala Gln  
1 5 10 15

Val Ile Arg Gln Glu Phe Glu Asp Arg Leu Ala Ala Ser Glu Glu Glu  
20 25 30

Thr Arg Gln Ala Lys Ala Glu Leu Ala Thr Leu Gln Ala Arg Gln Gln  
35 40 45

Leu Glu Leu Glu Glu Val His Arg Arg Val Lys Thr Ala Leu Ala Arg  
50 55 60

Lys Glu Glu Ala Val Ser Ser Leu Arg Thr Gln His Glu Val Ser Pro  
65 70 75 80

Cys Gly Gln Pro Cys Trp Thr Ser Gly Leu Gly Xaa Xaa Leu Thr Leu  
85 90 95

Trp Val Cys Cys  
100

&lt;210&gt; 1376

&lt;211&gt; 45

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1376

Ile Arg His Glu Glu Thr Leu Ser Pro Gly His Phe Lys Ser Ile Thr  
1 5 10 15

Gln Lys Lys Thr Leu Ile Phe Thr Phe Lys Ser His Met Gln Leu Leu  
20 25 30

Thr Leu Thr Ser Ala Val Ile Val Leu Ala Ile Ile Pro  
35 40 45

&lt;210&gt; 1377

&lt;211&gt; 230

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (26)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (162)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1377

Ser Pro Ser Gly Ala Pro Gly Arg Pro Gly Leu Arg Arg Arg Arg Arg  
 1 5 10 15

Arg Arg Arg Arg Arg Ala Asp His Val Xaa Ala Lys Glu Asn Pro Cys  
 20 25 30

Arg Lys Phe Gln Ala Asn Ile Phe Asn Lys Ser Lys Cys Gln Asn Cys  
 35 40 45

Phe Lys Pro Arg Glu Ser His Leu Leu Asn Asp Glu Asp Leu Thr Gln  
 50 55 60

Ala Lys Pro Ile Tyr Gly Gly Trp Leu Leu Leu Ala Pro Asp Gly Thr  
 65 70 75 80

Asp Phe Asp Asn Pro Val His Arg Ser Arg Lys Trp Gln Arg Arg Phe  
 85 90 95

Phe Ile Leu Tyr Glu His Gly Leu Leu Arg Tyr Ala Leu Asp Glu Met  
 100 105 110

Pro Thr Thr Leu Pro Gln Gly Thr Ile Asn Met Asn Gln Cys Thr Asp  
 115 120 125

Val Val Asp Gly Glu Gly Arg Thr Gly Gln Lys Phe Ser Leu Cys Ile  
 130 135 140

Leu Thr Pro Glu Lys Glu His Phe Ile Arg Ala Glu Thr Lys Glu Ile  
 145 150 155 160

Val Xaa Gly Trp Leu Glu Met Leu Met Val Tyr Pro Arg Thr Asn Lys  
 165 170 175

Gln Asn Gln Lys Lys Lys Arg Lys Val Glu Pro Pro Thr Pro Gln Glu  
 180 185 190

Pro Gly Pro Ala Lys Trp Leu Leu Pro Ala Ala Ala Ala Ala Ala Ala  
 195 200 205

Ala Ala Ala Ala Ser Pro Val Leu Arg Lys Ser Pro Pro Pro Ser Pro  
 210 215 220



His Ser Gly Arg Lys Lys  
225 230

<210> 1378  
<211> 75  
<212> PRT  
<213> Homo sapiens

<400> 1378  
Gly Lys Gln Lys Pro Leu Ser Ser Ala Phe His Leu Gln Glu Arg Arg  
1 5 10 15  
Lys Asn Ser Cys Leu Leu Ser Val Ile Gln Phe Ala Cys Ile Leu Cys  
20 25 30  
Ser Cys Thr Asn Pro Tyr Arg Val Asn Leu Leu Ser Thr Ile Tyr Trp  
35 40 45  
Cys Leu Ile Glu Asn Asp Cys Leu Pro Ser Phe Leu Val Pro Phe Leu  
50 55 60  
Thr Val Leu Lys Tyr Leu Lys Cys Ile Asp Cys  
65 70 75

<210> 1379  
<211> 239  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (229)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (231)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (234)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1379  
Arg Arg Gly Gln Val Gly Ala Arg Ser Cys Cys Phe Trp Phe Ser Cys  
1 5 10 15

Gly Arg Arg Arg Cys Pro Ala Ala Leu Gly Cys Arg Thr Asp Lys Ala  
20 25 30

Trp Ala Thr Ala Pro Gln Lys Pro Thr Gln Leu Asp Ala Gly Ala Gly  
35 40 45

Arg Arg Val Gly Asp Arg Val Ser Glu Gly Ala Ala Arg Ala Gly Gly  
50 55 60

Arg Ala Pro Glu Gly Glu Arg Gly Gly Gly Gly Ser Ala Ala Gly  
65 70 75 80

Arg Ala Gly Arg Gly Met Ser Met Pro Asp Ala Met Pro Leu Pro Gly  
85 90 95

Val Gly Glu Glu Leu Lys Gln Ala Lys Glu Ile Glu Asp Ala Glu Lys  
100 105 110

Tyr Ser Phe Met Ala Thr Val Thr Lys Ala Pro Lys Lys Gln Ile Gln  
115 120 125

Phe Ala Asp Asp Met Gln Glu Phe Thr Lys Phe Pro Thr Lys Thr Gly  
130 135 140

Arg Arg Ser Leu Ser Arg Ser Ile Ser Gln Ser Ser Thr Asp Ser Tyr  
145 150 155 160

Ser Ser Ala Ala Ser Tyr Thr Asp Ser Ser Asp Asp Glu Val Ser Pro  
165 170 175

Arg Glu Lys Gln Gln Thr Asn Ser Lys Gly Ser Ser Asn Phe Cys Val  
180 185 190

Lys Asn Ile Lys Gln Ala Glu Phe Gly Arg Arg Glu Ile Glu Ile Ala  
195 200 205

Glu Gln Asp Met Ser Ala Leu Ile Ser Leu Arg Lys Arg Ala Gln Gly  
210 215 220

Glu Lys Pro Leu Xaa Gly Xaa Lys Ile Xaa Gly Leu Thr His Tyr  
225 230 235

&lt;210&gt; 1380

&lt;211&gt; 97

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1380

Ser Cys Ala Asp Ile Val Ser Cys Val Ser Ala Val Ala Val Glu Glu  
1 5 10 15  
Leu Lys Leu Gly Lys Met Val Cys Ile Pro Cys Ile Val Ile Pro Val  
20 25 30  
Leu Leu Trp Ile Tyr Lys Lys Phe Leu Glu Pro Tyr Ile Tyr Pro Leu  
35 40 45  
Val Ser Pro Phe Val Ser Arg Ile Trp Pro Lys Lys Ala Ile Gln Glu  
50 55 60  
Ser Asn Asp Thr Asn Lys Gly Lys Val Asn Phe Lys Gly Ala Asp Met  
65 70 75 80  
Asn Gly Leu Pro Thr Lys Gly Pro Thr Glu Ile Cys Asp Lys Lys Lys  
85 90 95

Asp

<210> 1381

<211> 618

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (507)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (524)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (562)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1381

Pro Arg Val Arg Pro Arg Val Arg Ser Ile Thr Met Ser Val Arg Tyr  
1 5 10 15

Ser Ser Ser Lys His Tyr Ser Ser Ser Arg Ser Gly Gly Gly Gly Gly  
20 25 30

Gly Gly Gly Cys Gly Gly Gly Gly Gly Val Ser Ser Leu Arg Ile Ser

35                      40                      45  
 Ser Ser Lys Gly Ser Leu Gly Gly Gly Phe Ser Ser Gly Gly Phe Ser  
     50                      55                      60  
 Gly Gly Ser Phe Ser Arg Gly Ser Ser Gly Gly Gly Cys Phe Gly Gly  
     65                      70                      75                      80  
 Ser Ser Gly Gly Tyr Gly Gly Leu Gly Gly Phe Gly Gly Gly Ser Phe  
                     85                      90                      95  
 Arg Gly Ser Tyr Gly Ser Ser Ser Phe Gly Gly Ser Tyr Gly Gly Ser  
                     100                      105                      110  
 Phe Gly Gly Gly Ser Phe Gly Gly Gly Ser Phe Gly Gly Gly Ser Phe  
                     115                      120                      125  
 Gly Gly Gly Gly Phe Gly Gly Gly Gly Phe Gly Gly Gly Phe Gly Gly  
     130                      135                      140  
 Gly Phe Gly Gly Asp Gly Gly Leu Leu Ser Gly Asn Glu Lys Val Thr  
     145                      150                      155                      160  
 Met Gln Asn Leu Asn Asp Arg Leu Ala Ser Tyr Leu Asp Lys Val Arg  
                     165                      170                      175  
 Ala Leu Glu Glu Ser Asn Tyr Glu Leu Glu Gly Lys Ile Lys Glu Trp  
                     180                      185                      190  
 Tyr Glu Lys His Gly Asn Ser His Gln Gly Glu Pro Arg Asp Tyr Ser  
                     195                      200                      205  
 Lys Tyr Tyr Lys Thr Ile Asp Asp Leu Lys Asn Gln Ile Leu Asn Leu  
     210                      215                      220  
 Thr Thr Asp Asn Ala Asn Ile Leu Leu Gln Ile Asp Asn Ala Arg Leu  
     225                      230                      235                      240  
 Ala Ala Asp Asp Phe Arg Leu Lys Tyr Glu Asn Glu Val Ala Leu Arg  
                     245                      250                      255  
 Gln Ser Val Glu Ala Asp Ile Asn Gly Leu Arg Arg Val Leu Asp Glu  
                     260                      265                      270  
 Leu Thr Leu Thr Lys Ala Asp Leu Glu Met Gln Ile Glu Ser Leu Thr  
     275                      280                      285  
 Glu Glu Leu Ala Tyr Leu Lys Lys Asn His Glu Glu Glu Met Lys Asp  
     290                      295                      300  
 Leu Arg Asn Val Ser Thr Gly Asp Val Asn Val Glu Met Asn Ala Ala

305                      310                      315                      320  
 Pro Gly Val Asp Leu Thr Gln Leu Leu Asn Asn Met Arg Ser Gln Tyr  
                                  325                                   330                                   335  
 Glu Gln Leu Ala Glu Gln Asn Arg Lys Asp Ala Glu Ala Trp Phe Asn  
                                  340                                   345                                   350  
 Glu Lys Ser Lys Glu Leu Thr Thr Glu Ile Asp Asn Asn Ile Glu Gln  
                                  355                                   360                                   365  
 Ile Ser Ser Tyr Lys Ser Glu Ile Thr Glu Leu Arg Arg Asn Val Gln  
                                  370                                   375                                   380  
 Ala Leu Glu Ile Glu Leu Gln Ser Gln Leu Ala Leu Lys Gln Ser Leu  
 385                                   390                                   395                                   400  
 Glu Ala Ser Leu Ala Glu Thr Glu Gly Arg Tyr Cys Val Gln Leu Ser  
                                  405                                   410                                   415  
 Gln Ile Gln Ala Gln Ile Ser Ala Leu Glu Glu Gln Leu Gln Gln Ile  
                                  420                                   425                                   430  
 Arg Ala Glu Thr Glu Cys Gln Asn Thr Glu Tyr Gln Gln Leu Leu Asp  
                                  435                                   440                                   445  
 Ile Lys Ile Arg Leu Glu Asn Glu Ile Gln Thr Tyr Arg Ser Leu Leu  
                                  450                                   455                                   460  
 Glu Gly Glu Gly Ser Ser Gly Gly Gly Gly Arg Gly Gly Gly Ser Phe  
 465                                   470                                   475                                   480  
 Gly Gly Gly Tyr Gly Gly Gly Ser Ser Gly Gly Gly Ser Ser Gly Gly  
                                  485                                   490                                   495  
 Gly His Gly Gly Ser Ser Gly Gly Gly Tyr Xaa Gly Gly Ser Ser Gly  
                                  500                                   505                                   510  
 Gly Gly Ser Ser Gly Gly Gly Tyr Gly Gly Gly Xaa Pro Ala Ala Ala  
                                  515                                   520                                   525  
 Thr Ala Ala Val Pro Ala Ala Ala Thr Val Val Ala Val Pro Ala Ala  
                                  530                                   535                                   540  
 Ala Ala Ala Ala Thr Gly Ala Ala Leu Arg Arg Arg His Ser Ser Gly  
 545                                   550                                   555                                   560  
 Gly Xaa Tyr Gly Gly Gly Thr Ala Pro Ala Ala Asp Thr Ala Ala Ala  
                                  565                                   570                                   575  
 Gln Leu Arg Arg Arg Ile Arg Arg Arg His Ser Ser Gly Gly His Lys

580

585

590

Ser Ser Ser Ser Gly Ser Val Gly Glu Ser Ser Ser Lys Gly Pro Arg  
 595 600 605

Ser Ala Glu Thr Ser Trp Gly Asn Gln Asn  
 610 615

&lt;210&gt; 1382

&lt;211&gt; 500

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1382

Gln Ala Trp Ser Leu Gln Val Ala Leu Ser Pro Phe Phe Phe Pro Ala  
 1 5 10 15

Ser Pro Ser Asn Ser Phe Ala Ala Ala Val Pro Gln Leu Leu Phe Pro  
 20 25 30

Glu Leu Pro Leu Pro His Val Pro Gly Gln Glu Ser Ala Lys Arg Arg  
 35 40 45

Ser Ala Arg Arg Phe Leu Ile Met Ser Glu Leu Thr Lys Glu Leu Met  
 50 55 60

Glu Leu Val Trp Gly Thr Lys Ser Ser Pro Gly Leu Ser Asp Thr Ile  
 65 70 75 80

Phe Cys Arg Trp Thr Gln Gly Phe Val Phe Ser Glu Ser Glu Gly Ser  
 85 90 95

Ala Leu Glu Gln Phe Glu Gly Gly Pro Cys Ala Val Ile Ala Pro Val  
 100 105 110

Gln Ala Phe Leu Leu Lys Lys Leu Leu Phe Ser Ser Glu Lys Ser Ser  
 115 120 125

Trp Arg Asp Cys Ser Glu Glu Glu Gln Lys Glu Leu Leu Cys His Thr  
 130 135 140

Leu Cys Asp Ile Leu Glu Ser Ala Cys Cys Asp His Ser Gly Ser Tyr  
 145 150 155 160

Cys Leu Val Ser Trp Leu Arg Gly Lys Thr Thr Glu Glu Thr Ala Ser  
 165 170 175

Ile Ser Gly Ser Pro Ala Glu Ser Ser Cys Gln Val Glu His Ser Ser  
 180 185 190

Ala Leu Ala Val Glu Glu Leu Gly Phe Glu Arg Phe His Ala Leu Ile  
195 200 205

Gln Lys Arg Ser Phe Arg Ser Leu Pro Glu Leu Lys Asp Ala Val Leu  
210 215 220

Asp Gln Tyr Ser Met Trp Gly Asn Lys Phe Gly Val Leu Leu Phe Leu  
225 230 235 240

Tyr Ser Val Leu Leu Thr Lys Gly Ile Glu Asn Ile Lys Asn Glu Ile  
245 250 255

Glu Asp Ala Ser Glu Pro Leu Ile Asp Pro Val Tyr Gly His Gly Ser  
260 265 270

Gln Ser Leu Ile Asn Leu Leu Leu Thr Gly His Ala Val Ser Asn Val  
275 280 285

Trp Asp Gly Asp Arg Glu Cys Ser Gly Met Lys Leu Leu Gly Ile His  
290 295 300

Glu Gln Ala Ala Val Gly Phe Leu Thr Leu Met Glu Ala Leu Arg Tyr  
305 310 315 320

Cys Lys Val Gly Ser Tyr Leu Lys Ser Pro Lys Phe Pro Ile Trp Ile  
325 330 335

Val Gly Ser Glu Thr His Leu Thr Val Phe Phe Ala Lys Asp Met Ala  
340 345 350

Leu Val Ala Pro Glu Ala Pro Ser Glu Gln Ala Arg Arg Val Phe Gln  
355 360 365

Thr Tyr Asp Pro Glu Asp Asn Gly Phe Ile Pro Asp Ser Leu Leu Glu  
370 375 380

Asp Val Met Lys Ala Leu Asp Leu Val Ser Asp Pro Glu Tyr Ile Asn  
385 390 395 400

Leu Met Lys Asn Lys Leu Asp Pro Glu Gly Leu Gly Ile Ile Leu Leu  
405 410 415

Gly Pro Phe Leu Gln Glu Phe Phe Pro Asp Gln Gly Ser Ser Gly Pro  
420 425 430

Glu Ser Phe Thr Val Tyr His Tyr Asn Gly Leu Lys Gln Ser Asn Tyr  
435 440 445

Asn Glu Lys Val Met Tyr Val Glu Gly Thr Ala Val Val Met Gly Phe  
450 455 460

Glu Asp Pro Met Leu Gln Thr Asp Asp Thr Pro Ile Lys Arg Cys Leu  
 465 470 475 480

Gln Thr Lys Trp Pro Tyr Ile Glu Leu Leu Trp Thr Thr Asp Arg Ser  
 485 490 495

Pro Ser Leu Asn  
 500

<210> 1383  
 <211> 175  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (80)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (133)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1383  
 Leu Cys Asp Ser Glu Glu Val Ala Trp Glu Leu Gly Glu Ala Gln Arg  
 1 5 10 15

Met Pro Pro Gly Glu Ser Pro His His Gln Cys Ile Thr Ser Asn Val  
 20 25 30

Pro Leu Glu Arg Pro Pro Leu Cys Ser Val Met Phe Gln Lys Leu Leu  
 35 40 45

Met Lys Gln His Val Leu Val Ala Cys Ala Leu Ala Cys His Asp Ser  
 50 55 60

Pro Leu Thr Gly Pro Pro Val Lys Ser Lys Gly Leu Pro Ala Ala Xaa  
 65 70 75 80

Ser Glu Ala Ser Ala Glu Ser Ser His Pro His Gly Ser Gly Glu Val  
 85 90 95

Ile Thr Leu Ser Arg Arg Ser Asp His Thr Ser Ser Ser Pro Arg Gly  
 100 105 110

Leu Leu Ile Leu Gly Asp Asp Ser Ser Ser Glu His Leu Leu Gln Asp  
 115 120 125



Trp Ile Pro Pro Xaa Cys Arg Ser Trp Gly Leu Arg Ala Leu Glu Gln  
130 135 140

Pro Met Leu Glu Ser Cys Leu Pro Pro Ser Ala Thr Val Pro Tyr Pro  
145 150 155 160

Gly Thr Val Glu Trp Pro His Gly Gly Asp Gly Arg Pro Ala Glu  
165 170 175

<210> 1384

<211> 57

<212> PRT

<213> Homo sapiens

<400> 1384

Ser Gln Ser Pro Cys Lys Gln Asp Lys Ser Lys Gly Gly Leu Ala Cys  
1 5 10 15

Pro Ser Leu Phe His Thr Phe Leu Pro Gly Thr Glu Ser His Gly Glu  
20 25 30

Phe Lys Thr Pro Ser His Ile Leu Leu Leu Lys Leu Val Gln Cys Thr  
35 40 45

Thr Ser Ser Glu Glu Tyr Arg Met Ala  
50 55

<210> 1385

<211> 56

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (55)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1385

Val Pro Gly Ser Gln Pro Leu Glu Thr Gly Ala Leu Arg Glu Asp Ser  
1 5 10 15

Leu Pro Pro Arg Ile Leu Leu His Pro Trp Phe Glu Ser Val Leu Glu  
20 25 30

Pro Gly Tyr Ile Asp Ser Glu Ile Gly Thr Ser Asp Gln Ile Val Pro  
35 40 45

Glu Tyr Gln Glu Asp Ser Xaa His  
 50 55

<210> 1386

<211> 105

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (40)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1386

His Glu Leu Ala Ser Ser Glu Phe Ser His Glu Ala Val Lys Thr His  
 1 5 10 15

Ile Asp Thr Val Ile Asn Ala Leu Lys Thr Glu Arg Asp Val Ser Val  
 20 25 30

Arg Gln Arg Ala Ala Asp Leu Xaa Tyr Ala Met Cys Asp Arg Ser Asn  
 35 40 45

Ala Lys Gln Ile Val Ser Glu Met Leu Arg Tyr Leu Glu Thr Ala Asp  
 50 55 60

Tyr Ala Ile Arg Glu Glu Ile Val Leu Lys Val Ala Ile Leu Ala Glu  
 65 70 75 80

Lys Tyr Ala Val Asp Tyr Ser Trp Tyr Val Asp Thr Ile Leu Asn Leu  
 85 90 95

Ile Arg Ile Ala Gly Arg Leu Arg Glu  
 100 105

<210> 1387

<211> 67

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1387

Xaa His Arg Gly Asn Gly Xaa Leu Xaa Val Pro Ser Glu Phe Pro Gly  
1 5 10 15

Arg Pro Thr Arg Pro Gly Lys Leu Asp Ile Val Met His Lys Met Gln  
20 25 30

Glu Lys Val Gln Ser Ile Asn Tyr Asn Pro Phe Asp Gln Lys Leu Tyr  
35 40 45

Val Tyr Asn Asp Gly Tyr Leu Leu Asn Tyr Asp Leu Ser Val Leu Gln  
50 55 60

Lys Pro Gln  
65

<210> 1388

<211> 345

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (297)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1388

Val Trp Met Thr Ser Thr Ser Ser Pro Val Pro Arg Ala His Cys Ser  
1 5 10 15

Asn Leu Thr Cys Asn Asn Ser Lys Asn Lys Thr Leu Val Thr Gln Asn  
20 25 30

Ser Gly Val Glu Ala Leu Ile His Ala Ile Leu Arg Ala Gly Asp Lys  
35 40 45

Asp Asp Ile Thr Glu Pro Ala Val Cys Ala Leu Arg His Leu Thr Ser  
50 55 60

Arg His Pro Glu Ala Glu Met Ala Gln Asn Ser Val Arg Leu Asn Tyr

65		70		75		80
Gly Ile Pro Ala Ile Val Lys Leu Leu Asn Gln Pro Asn Gln Trp Pro						
	85		90		95	
Leu Val Lys Ala Thr Ile Gly Leu Ile Arg Asn Leu Ala Leu Cys Pro						
	100		105		110	
Ala Asn His Ala Pro Leu Gln Glu Ala Ala Val Ile Pro Arg Leu Val						
	115		120		125	
Gln Leu Leu Val Lys Ala His Gln Asp Ala Gln Arg His Val Ala Ala						
	130		135		140	
Gly Thr Gln Gln Pro Tyr Thr Asp Gly Val Arg Met Glu Glu Ile Val						
	145		150		155	
Glu Gly Cys Thr Gly Ala Leu His Ile Leu Ala Arg Asp Pro Met Asn						
	165		170		175	
Arg Met Glu Ile Phe Arg Leu Asn Thr Ile Pro Leu Phe Val Gln Leu						
	180		185		190	
Leu Tyr Ser Ser Val Glu Asn Ile Gln Arg Val Ala Ala Gly Val Leu						
	195		200		205	
Cys Glu Leu Ala Gln Asp Lys Glu Ala Ala Asp Ala Ile Asp Ala Glu						
	210		215		220	
Gly Ala Ser Ala Pro Leu Met Glu Leu Leu His Ser Arg Asn Glu Gly						
	225		230		235	
Thr Ala Thr Tyr Ala Ala Ala Val Leu Phe Arg Ile Ser Glu Asp Lys						
	245		250		255	
Asn Pro Asp Tyr Arg Lys Arg Val Ser Val Glu Leu Thr Asn Ser Leu						
	260		265		270	
Phe Lys His Asp Pro Ala Ala Trp Glu Ala Ala Gln Ser Met Ile Pro						
	275		280		285	
Ile Asn Glu Pro Tyr Gly Asp Asp Xaa Asp Ala Thr Tyr Arg Pro Met						
	290		295		300	
Tyr Ser Ser Asp Val Pro Leu Asp Pro Leu Glu Met His Met Asp Met						
	305		310		315	
Asp Gly Asp Tyr Pro Ile Asp Thr Tyr Ser Asp Gly Leu Arg Pro Pro						
	325		330		335	
Tyr Pro Thr Ala Asp His Met Leu Ala						

340

345

<210> 1389  
<211> 64  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (17)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1389  
Ser Leu Ile Cys Tyr Val Gln Ser Leu Lys Ala Thr Thr His Phe Phe  
1 5 10 15  
Xaa Lys Val Asp Ala Phe Ser Ala Val Leu Glu Ser Val Phe Cys Phe  
20 25 30  
Trp Gln Glu Ser Cys Lys Leu Cys Ile Leu Lys Gln Met Gln Lys Val  
35 40 45  
Val Leu Cys Lys Thr Phe Val Phe Cys Leu Ser Gln Ile Asn Ile Leu  
50 55 60

<210> 1390  
<211> 371  
<212> PRT  
<213> Homo sapiens

<400> 1390  
Pro Pro Arg Ala Leu Gly Ser Val Ala Met Glu Asn Gln Val Leu Thr  
1 5 10 15  
Pro His Val Tyr Trp Ala Gln Arg His Arg Glu Leu Tyr Leu Arg Val  
20 25 30  
Glu Leu Ser Asp Val Gln Asn Pro Ala Ile Ser Ile Thr Glu Asn Val  
35 40 45  
Leu His Phe Lys Ala Gln Gly His Gly Ala Lys Gly Asp Asn Val Tyr  
50 55 60  
Glu Phe His Leu Glu Phe Leu Asp Leu Val Lys Pro Glu Pro Val Tyr

65		70		75		80									
Lys	Leu	Thr	Gln	Arg	Gln	Val	Asn	Ile	Thr	Val	Gln	Lys	Lys	Val	Ser
			85						90					95	
Gln	Trp	Trp	Glu	Arg	Leu	Thr	Lys	Gln	Glu	Lys	Arg	Pro	Leu	Phe	Leu
			100					105					110		
Ala	Pro	Asp	Phe	Asp	Arg	Trp	Leu	Asp	Glu	Ser	Asp	Ala	Glu	Met	Glu
		115					120					125			
Leu	Arg	Ala	Lys	Glu	Glu	Glu	Arg	Leu	Asn	Lys	Leu	Arg	Leu	Glu	Ser
	130					135					140				
Glu	Gly	Ser	Pro	Glu	Thr	Leu	Thr	Asn	Leu	Arg	Lys	Gly	Tyr	Leu	Phe
145					150				155					160	
Met	Tyr	Asn	Leu	Val	Gln	Phe	Leu	Gly	Phe	Ser	Trp	Ile	Phe	Val	Asn
			165					170					175		
Leu	Thr	Val	Arg	Phe	Cys	Ile	Leu	Gly	Lys	Glu	Ser	Phe	Tyr	Asp	Thr
		180					185						190		
Phe	His	Thr	Val	Ala	Asp	Met	Met	Tyr	Phe	Cys	Gln	Met	Leu	Ala	Val
		195					200					205			
Val	Glu	Thr	Ile	Asn	Ala	Ala	Ile	Gly	Val	Thr	Thr	Ser	Pro	Val	Leu
	210					215					220				
Pro	Ser	Leu	Ile	Gln	Leu	Leu	Gly	Arg	Asn	Phe	Ile	Leu	Phe	Ile	Ile
225					230				235					240	
Phe	Gly	Thr	Met	Glu	Glu	Met	Gln	Asn	Lys	Ala	Val	Val	Phe	Phe	Val
			245					250					255		
Phe	Tyr	Leu	Trp	Ser	Ala	Ile	Glu	Ile	Phe	Arg	Tyr	Ser	Phe	Tyr	Met
		260						265					270		
Leu	Thr	Cys	Ile	Asp	Met	Asp	Trp	Lys	Val	Leu	Thr	Trp	Leu	Arg	Tyr
		275					280					285			
Thr	Leu	Trp	Ile	Pro	Leu	Tyr	Pro	Leu	Gly	Cys	Leu	Ala	Glu	Ala	Val
	290					295					300				
Ser	Val	Ile	Gln	Ser	Ile	Pro	Ile	Phe	Asn	Glu	Thr	Gly	Arg	Phe	Ser
305					310				315					320	
Phe	Thr	Leu	Pro	Tyr	Pro	Val	Lys	Ile	Lys	Val	Arg	Phe	Ser	Phe	Phe
			325					330					335		
Leu	Gln	Ile	Tyr	Leu	Ile	Met	Ile	Phe	Leu	Gly	Leu	Tyr	Ile	Asn	Phe

340

345

350

Arg His Leu Tyr Lys Gln Arg Arg Arg Tyr Gly Gln Lys Lys Lys  
355 360 365

Lys Ile His  
370

&lt;210&gt; 1391

&lt;211&gt; 365

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (28)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1391

Ala Glu Val Asn Thr Val Lys Tyr Leu Lys Pro Ser Thr Ser Gln Ile  
1 5 10 15

Met Lys Lys Leu Leu Leu Lys Phe Ser Ser Gln Xaa Lys Lys Lys Lys  
20 25 30

Ile Lys Arg Glu Ile Lys Ile Leu Glu Asn Leu Arg Gly Gly Pro Asn  
35 40 45

Ile Ile Thr Leu Ala Asp Ile Val Lys Asp Pro Val Ser Arg Thr Pro  
50 55 60

Ala Leu Val Phe Glu His Val Asn Asn Thr Asp Phe Lys Gln Leu Tyr  
65 70 75 80

Gln Thr Leu Thr Asp Tyr Asp Ile Arg Phe Tyr Met Tyr Glu Ile Leu  
85 90 95

Lys Ala Leu Asp Tyr Cys His Ser Met Gly Ile Met His Arg Asp Val  
100 105 110

Lys Pro His Asn Val Met Ile Asp His Glu His Arg Lys Leu Arg Leu  
115 120 125

Ile Asp Trp Gly Leu Ala Glu Phe Tyr His Pro Gly Gln Glu Tyr Asn  
130 135 140

Val Arg Val Ala Ser Arg Tyr Phe Lys Gly Pro Glu Leu Leu Val Asp  
145 150 155 160

Tyr Gln Met Tyr Asp Tyr Ser Leu Asp Met Trp Ser Leu Gly Cys Met  
                     165                    170                    175  
 Leu Ala Ser Met Ile Phe Arg Lys Glu Pro Phe Phe His Gly His Asp  
                     180                    185                    190  
 Asn Tyr Asp Gln Leu Val Arg Ile Ala Lys Val Leu Gly Thr Glu Asp  
                     195                    200                    205  
 Leu Tyr Asp Tyr Ile Asp Lys Tyr Asn Ile Glu Leu Asp Pro Arg Phe  
                     210                    215                    220  
 Asn Asp Ile Leu Gly Arg His Ser Arg Lys Arg Trp Glu Arg Phe Val  
 225                    230                    235                    240  
 His Ser Glu Asn Gln His Leu Val Ser Pro Glu Ala Leu Asp Phe Leu  
                     245                    250                    255  
 Asp Lys Leu Leu Arg Tyr Asp His Gln Ser Arg Leu Thr Ala Arg Glu  
                     260                    265                    270  
 Ala Met Glu His Pro Tyr Phe Tyr Thr Val Val Lys Asp Gln Ala Arg  
                     275                    280                    285  
 Met Gly Ser Ser Ser Met Pro Gly Gly Ser Thr Pro Val Ser Ser Ala  
                     290                    295                    300  
 Asn Met Met Ser Gly Ile Ser Ser Val Pro Thr Pro Ser Pro Leu Gly  
 305                    310                    315                    320  
 Pro Leu Ala Gly Ser Pro Val Ile Ala Ala Ala Asn Pro Leu Gly Met  
                     325                    330                    335  
 Pro Val Gln Leu Pro Leu Ala Leu Ser Ser Asn Gly Pro Ile Cys Leu  
                     340                    345                    350  
 Leu Met Pro Glu Gln Arg Trp Gly Ser Pro Pro Ser Pro  
                     355                    360                    365

&lt;210&gt; 1392

&lt;211&gt; 276

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1392

Thr Met Ala Ala Ser Asp Thr Glu Arg Asp Gly Leu Ala Pro Glu Lys  
   1                    5                    10                    15

Thr Ser Pro Asp Arg Asp Lys Lys Lys Glu Gln Ser Glu Val Ser Val



20 25 30

Ser Pro Arg Ala Ser Lys His His Tyr Ser Arg Ser Arg Ser Arg Ser  
35 40 45

Arg Glu Arg Lys Arg Lys Ser Asp Asn Glu Gly Arg Lys His Arg Ser  
50 55 60

Arg Ser Arg Ser Lys Glu Gly Arg Arg His Glu Ser Lys Asp Lys Ser  
65 70 75 80

Ser Lys Lys His Lys Ser Glu Glu His Asn Asp Lys Glu His Ser Ser  
85 90 95

Asp Lys Gly Arg Glu Arg Leu Asn Ser Ser Glu Asn Gly Glu Asp Arg  
100 105 110

His Lys Arg Lys Glu Arg Lys Ser Ser Arg Gly Arg Ser His Ser Arg  
115 120 125

Ser Arg Ser Arg Glu Arg Arg His Arg Ser Arg Ser Arg Glu Arg Lys  
130 135 140

Lys Ser Arg Ser Arg Ser Arg Glu Arg Lys Lys Ser Arg Ser Arg Ser  
145 150 155 160

Arg Glu Arg Lys Lys Ser Arg Ser Arg Ser Arg Glu Arg Lys Arg Arg  
165 170 175

Ile Arg Ser Arg Ser Arg Ser Arg Ser Arg His Arg His Arg Thr Arg  
180 185 190

Ser Arg Ser Arg Thr Arg Ser Arg Ser Arg Asp Arg Lys Lys Arg Ile  
195 200 205

Glu Lys Pro Arg Arg Phe Ser Arg Ser Leu Ser Arg Thr Pro Ser Pro  
210 215 220

Pro Pro Phe Arg Gly Arg Asn Thr Ala Met Asp Ala Gln Glu Ala Leu  
225 230 235 240

Ala Arg Arg Glu Arg Pro Gly Val Ser Leu Ile Val Cys Pro Gly Trp  
245 250 255

Val Thr Gln Cys Asn Leu Met Leu Leu Pro Leu Gly Thr Gln Pro Asp  
260 265 270

Arg Lys Leu Gln  
275

<210> 1393  
 <211> 180  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (4)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (139)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (172)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (180)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1393  
 Ala Arg Arg Xaa Val Val Ile Thr Ser Lys Ser Gly Glu Ile Leu Tyr  
 1 5 10 15  
 Arg Ile Ser Pro Trp Ala Lys Tyr Val Val Arg Glu Gly Asp Asn Val  
 20 25 30  
 Asn Tyr Asp Trp Ile His Trp Asp Pro Glu His Ser Tyr Glu Phe Lys  
 35 40 45  
 His Ser Arg Pro Lys Lys Pro Arg Ser Leu Arg Ile Tyr Glu Ser His  
 50 55 60  
 Val Gly Ile Ser Ser His Glu Gly Lys Val Ala Ser Tyr Lys His Phe  
 65 70 75 80  
 Thr Cys Asn Val Leu Pro Arg Ile Lys Gly Leu Gly Tyr Asn Cys Ile  
 85 90 95  
 Gln Leu Met Ala Ile Met Glu His Ala Tyr Tyr Ala Ser Phe Gly Tyr  
 100 105 110  
 Gln Ile Thr Ser Phe Phe Ala Ala Ser Ser Arg Tyr Gly Thr Pro Glu  
 115 120 125

Glu Leu Gln Glu Leu Val Asp Thr Ala His Xaa Met Gly Ile Ile Val  
130 135 140

Leu Leu Asp Val Val Gln Ala His Ala Ser Lys Asn Ser Ser Arg Trp  
145 150 155 160

Asp Trp Asn Met Val Trp Met Gly Asp Arg Phe Xaa Val Asn Phe Pro  
165 170 175

Phe Leu Gly Xaa  
180

<210> 1394

<211> 162

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1394

Ile Leu Thr Tyr Lys Glu Thr Gly Pro Gln Thr Gly Asn Ser Leu Val  
1 5 10 15

Gln Ala Ser Ala Arg Arg Lys Asp Thr Met Thr Ala Pro Cys Trp Ala  
20 25 30

Gln Pro Gly Ser Leu Ala Lys Cys Leu Leu Glu Ala Val Pro Ala Arg  
35 40 45

Gly Leu Gln Gln Gly Asp Ser Leu Pro Ser Gly His Tyr Gln Tyr Xaa  
50 55 60

Leu Tyr Leu Glu Val Gly Lys Arg Ser Pro Leu Arg Gln Gln Asp Asn  
65 70 75 80

Gly Gln Phe Arg Glu Gly Glu Gly Ser Lys Arg Phe Arg Gly His Arg  
85 90 95

Ser Gln Arg Thr Pro Pro Arg Pro Thr Ala Gly Ser Ala Trp Lys Ile  
100 105 110

His Leu Leu Gly Thr Phe Trp Gln Pro Asp Gly Ser Asn Ser Pro Leu  
115 120 125

Gly Leu Ile Pro Ser Ser Lys Ser Trp Leu Gln Met Ser Leu Ser Ser  
130 135 140

Pro Tyr Trp Arg Ala Pro Pro Asp Ser Trp Ala Gln Phe Ile Ser Ser  
 145 150 155 160

Pro Phe

<210> 1395

<211> 416

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (412)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (413)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1395

Gln Leu Asp Gly Val Gly Leu Glu Ser Arg Ser Pro Gly Cys Ser Thr  
 1 5 10 15

Trp Glu Lys Ala Asp Arg Val Arg Gly Pro Val Ala Gln Arg Ala Val  
 20 25 30

Ala Ser Gly Ser Gly Lys Trp Arg Gln Glu Pro Ser Leu His Phe Ala  
 35 40 45

Met Ser Phe Leu Ile Asp Ser Ser Ile Met Ile Thr Ser Gln Ile Leu  
 50 55 60

Phe Phe Gly Phe Gly Trp Leu Phe Phe Met Arg Gln Leu Phe Lys Asp  
 65 70 75 80

Tyr Glu Ile Arg Gln Tyr Val Val Gln Val Ile Phe Ser Val Thr Phe  
 85 90 95

Ala Phe Ser Cys Thr Met Phe Glu Leu Ile Ile Phe Glu Ile Leu Gly  
 100 105 110

Val Leu Asn Ser Ser Ser Arg Tyr Phe His Trp Lys Met Asn Leu Cys  
 115 120 125

Val Ile Leu Leu Ile Leu Val Phe Met Val Pro Phe Tyr Ile Gly Tyr  
 130 135 140

Phe Ile Val Ser Asn Ile Arg Leu Leu His Lys Gln Arg Leu Leu Phe  
145 150 155 160

Ser Cys Leu Leu Trp Leu Thr Phe Met Tyr Phe Phe Trp Lys Leu Gly  
165 170 175

Asp Pro Phe Pro Ile Leu Ser Pro Lys His Gly Ile Leu Ser Ile Glu  
180 185 190

Gln Leu Ile Ser Arg Val Gly Val Ile Gly Val Thr Leu Met Ala Leu  
195 200 205

Leu Ser Gly Phe Gly Ala Val Asn Cys Pro Tyr Thr Tyr Met Ser Tyr  
210 215 220

Phe Leu Arg Asn Val Thr Asp Thr Asp Ile Leu Ala Leu Glu Arg Arg  
225 230 235 240

Leu Leu Gln Thr Met Asp Met Ile Ile Ser Lys Lys Lys Arg Met Ala  
245 250 255

Met Ala Arg Arg Thr Met Phe Gln Lys Gly Glu Val His Asn Lys Pro  
260 265 270

Ser Gly Phe Trp Gly Met Ile Lys Ser Val Thr Thr Ser Ala Ser Gly  
275 280 285

Ser Glu Asn Leu Thr Leu Ile Gln Gln Glu Val Asp Ala Leu Glu Glu  
290 295 300

Leu Ser Arg Gln Leu Phe Leu Glu Thr Ala Asp Leu Tyr Ala Thr Lys  
305 310 315 320

Glu Arg Ile Glu Tyr Ser Lys Thr Phe Lys Gly Lys Tyr Phe Asn Phe  
325 330 335

Leu Gly Tyr Phe Phe Ser Ile Tyr Cys Val Trp Lys Ile Phe Met Ala  
340 345 350

Thr Ile Asn Ile Val Phe Asp Arg Val Gly Lys Thr Asp Pro Val Thr  
355 360 365

Arg Gly Ile Glu Ile Thr Val Asn Tyr Leu Gly Ile Gln Phe Asp Val  
370 375 380

Lys Phe Trp Ser Gln His Ile Ser Phe Ile Leu Val Gly Ile Ile Ile  
385 390 395 400

Val Thr Ser Ile Arg Gly Leu Leu Ile Thr Leu Xaa Xaa Val Ile Leu  
405 410 415

&lt;210&gt; 1396

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1396

Ile Ile Tyr Val His Ile Val Gln Gln Lys Tyr Asn Val Asn His Asn  
1 5 10 15

Ile Ile Phe Asn Phe Leu Val Ala Ile Leu Lys Lys Lys Gln Ala Lys  
20 25 30

Leu Ile Leu Ile Thr Val Tyr Val Thr Gln Tyr Ile Lys Asn Ile Ile  
35 40 45

Ser Thr Cys Asn Gln Tyr Lys Arg Leu Leu Met Lys His Leu Ile Phe  
50 55 60

Phe Phe Phe His Thr Lys Ser  
65 70

&lt;210&gt; 1397

&lt;211&gt; 204

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1397

Ala Pro Arg Leu Val Val Thr Cys Arg His Val Ser Pro Arg Glu Ala  
1 5 10 15

Ala Arg Val Leu Val Arg Ser Thr Thr Pro Lys Ser Val Ala Ile Trp  
20 25 30

Gly Arg Val Val Phe Ala Thr Gln Glu Thr Cys Pro Tyr Asp Ile Ala  
35 40 45

Val Val Ser Leu Glu Glu Asp Leu Asp Asp Val Pro Ile Pro Val Pro  
50 55 60

Ala Glu His Phe His Glu Gly Glu Ala Val Ser Val Val Gly Phe Gly  
65 70 75 80

Val Phe Gly Gln Ser Cys Gly Pro Ser Val Thr Ser Gly Ile Leu Ser

85 90 95

Ala Val Val Gln Val Asn Gly Thr Pro Val Met Leu Gln Thr Thr Cys  
100 105 110

Ala Val His Ser Gly Ser Ser Gly Gly Pro Leu Phe Ser Asn His Ser  
115 120 125

Gly Asn Leu Leu Gly Ile Ile Thr Ser Asn Thr Arg Asp Asn Asn Thr  
130 135 140

Gly Ala Thr Tyr Pro His Leu Asn Phe Ser Ile Pro Ile Thr Val Leu  
145 150 155 160

Gln Pro Ala Leu Gln Gln Tyr Ser Gln Thr Gln Asp Leu Gly Gly Leu  
165 170 175

Arg Glu Leu Asp Arg Ala Ala Glu Pro Val Arg Val Val Trp Arg Leu  
180 185 190

Gln Arg Pro Leu Ala Glu Ala Pro Arg Ser Lys Leu  
195 200

&lt;210&gt; 1398

&lt;211&gt; 69

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (19)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1398

Val Phe Ile Val Phe Asn Ser Val Thr Ser Arg Phe Phe Pro Lys Lys  
1 5 10 15

Phe Leu Xaa Ile Lys Ser Arg Leu Phe Arg Lys Tyr Leu Pro Val Leu  
20 25 30

His Phe Asn Phe Thr Asn Gln Thr Thr Ala Ile Gln Pro Ile Lys Gln  
35 40 45

Gln Lys Gln Ser Lys Glu Arg Asp Leu Asp Ile Gly Ile Lys Glu Ser  
50 55 60

Phe His Phe Ile Ile  
65

<210> 1399  
<211> 238  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (18)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (57)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1399  
Glu Ala Glu Ala Ala Glu Arg Gly Pro Leu His Ala Gly Lys Gln Pro  
1 5 10 15  
Arg Xaa Pro Gly Gly Gly Ala Arg Trp Pro Cys Cys Ser Ala Phe Lys  
20 25 30  
Glu Gln Gln Phe Val Ile Ala Gly Val Leu Val Glu Asp Ser Asn Asn  
35 40 45  
His His Leu Met Leu Glu Ala Ser Xaa Trp Ala Thr Ile Glu Gly Leu  
50 55 60  
Val Glu Leu Leu Gln Pro Phe Lys Gln Val Ala Glu Met Leu Ser Ala  
65 70 75 80  
Ser Arg Tyr Pro Thr Ile Ser Met Val Lys Pro Leu Leu His Met Leu  
85 90 95  
Leu Asn Thr Thr Leu Asn Ile Lys Glu Thr Asp Ser Lys Glu Leu Ser  
100 105 110  
Met Ala Lys Glu Val Ile Ala Lys Glu Leu Ser Lys Thr Tyr Gln Glu  
115 120 125  
Thr Pro Glu Ile Asp Met Phe Leu Asn Val Ala Thr Phe Leu Asp Pro  
130 135 140  
Arg Tyr Lys Arg Leu Pro Phe Leu Ser Ala Phe Glu Arg Gln Gln Val  
145 150 155 160  
Glu Asn Arg Val Val Glu Glu Ala Lys Gly Cys Trp Thr Arg Ser Lys  
165 170 175



Thr Ala Ala Thr Gly Arg Leu Arg Thr Arg Ser Ser Arg Cys Pro Arg  
180 185 190

Ser Leu Pro Ser Arg Ser Ser Cys Gly His Pro Arg Arg Arg Pro Pro  
195 200 205

Ala Ser Ser Thr Thr Cys Trp Pro Arg Ser Ser Ala Arg Gln Ala Ala  
210 215 220

Trp Arg Thr Arg Lys Ser Gly Met Pro Arg Trp Trp Arg Ser  
225 230 235

<210> 1400

<211> 83

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (83)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1400

Phe Leu Lys Leu Cys Gly Leu Lys Trp Gln Val Ala Ser Thr Asp Phe  
1 5 10 15

Thr Arg Phe Lys Leu Ile Phe Lys Ser Asn His Trp Arg Asn Arg Tyr  
20 25 30

Thr Phe Val Cys Arg Ile Phe Thr Ser Tyr Asn Ser Thr Arg Lys Val  
35 40 45

Phe Ser Phe Pro Ala Asp Ala Gly Thr Pro Thr Gly Thr Leu Gln Lys  
50 55 60

Asp Ala Ser Pro Asp Cys Thr Asp Gly Arg Trp Lys His Gly Pro Val  
65 70 75 80

Cys Gly Xaa

<210> 1401

<211> 79

<212> PRT

<213> Homo sapiens

<400> 1401

Gly Ala Leu Cys Ala Val Trp Ala Arg Ala Gly Arg Pro Gly Pro Gln  
1 5 10 15

Asp Val Arg Cys Pro Leu Arg Arg Ala Gly Ala Cys Gly Glu Thr Arg  
20 25 30

Ala Thr Cys Glu Arg Gly Pro Glu Thr Phe Cys Thr Arg Glu Leu Arg  
35 40 45

Gly Leu Ser Asn Pro Ala Ser Val Gly Asn Val Ser Glu Thr Gln Gly  
50 55 60

Glu Trp Pro Gln Pro Phe Val Thr Cys Ser Pro Ala Cys Pro Lys  
65 70 75

<210> 1402

<211> 222

<212> PRT

<213> Homo sapiens

<400> 1402

Pro Ala Asn Gly Leu Leu Phe Gly Gly Leu Arg Ser Arg Glu Leu Arg  
1 5 10 15

Val Phe Ala Arg Leu Ser Thr Phe Arg Lys Ile Arg Ala Gly Val Trp  
20 25 30

Glu Val Pro His Ser Thr Gly Gln Arg Pro Leu Asp Ser Arg Gly Asn  
35 40 45

Leu Gln Leu Trp Val Arg Gly His Leu Ala Leu Val Phe Ala Leu Tyr  
50 55 60

Arg Ser Cys Gly Pro Arg Gly Ala Ser Gly Glu Asp Val Ser Gly Arg  
65 70 75 80

Gly Phe Pro Ala Phe Cys Leu Gly Gln Trp Gly Cys Ser Cys Leu Ser  
85 90 95

Phe Ser Pro Thr Pro Trp Thr Val Leu Gly Cys Trp Cys Thr Trp Leu  
100 105 110

Ala His Gly Gly Gln Arg Ala Glu Asn Ala Thr Ala Trp Leu Leu Val  
115 120 125

Pro Phe Asp Gln Glu Thr Gln Glu Glu Thr Pro Gln Ser Ala Glu Arg  
130 135 140

Pro Pro Gly Ser Leu Ala His Ser Arg Ser Gly Arg Asp Gly Arg Val

145                      150                      155                      160  
Ser Ser Leu Ser Ser Gly Ile Arg Lys Gly Met Val Ser Thr Pro His  
                         165                      170                      175  
Cys Gly Gly Phe Arg Gln Gly Ser Tyr Cys Leu Leu Cys Leu Gly Phe  
                         180                      185                      190  
Pro Ile Trp Lys Met Gly Ala Gly Val Leu Thr Tyr Leu Arg Trp Asn  
                         195                      200                      205  
Gly Glu Gln Gly Thr Cys Arg Ser Pro Ser Glu Asn Val Met  
                         210                      215                      220

<210> 1403

<211> 139

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (126)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1403

Arg Ala Thr Leu Glu His Pro Ala Leu Val Pro Leu Gln Pro Ala Glu  
1                      5                      10                      15  
Met Val Glu Leu Met Phe Pro Leu Leu Leu Leu Leu Leu Pro Phe Leu  
                         20                      25                      30  
Leu Tyr Met Ala Ala Pro Gln Ile Arg Lys Met Leu Ser Ser Gly Val  
                         35                      40                      45  
Cys Thr Ser Thr Val Gln Leu Pro Gly Lys Val Val Val Val Thr Gly  
                         50                      55                      60  
Ala Asn Thr Gly Ile Gly Lys Glu Thr Ala Lys Glu Leu Ala Gln Arg  
65                      70                      75                      80  
Gly Ala Arg Val Tyr Leu Ala Cys Arg Asp Val Glu Lys Gly Glu Leu  
                         85                      90                      95  
Val Ala Lys Glu Ile Gln Thr Thr Thr Gly Asn Gln Gln Val Leu Val  
                         100                      105                      110  
Arg Lys Leu Asp Leu Ser Asp Thr Lys Ser Ile Arg Ala Xaa Ala Lys  
                         115                      120                      125

Gly Phe Leu Ala Glu Glu Lys His Leu His Val  
 130 135

<210> 1404

<211> 285

<212> PRT

<213> Homo sapiens

<400> 1404

Glu Glu Gln His Ser Met Leu Gly Ser Gly Phe Lys Ala Glu Arg Leu  
 1 5 10 15

Arg Val Asn Leu Arg Leu Val Ile Asn Arg Leu Lys Leu Leu Glu Lys  
 20 25 30

Lys Lys Thr Glu Leu Ala Gln Lys Ala Arg Lys Glu Ile Ala Asp Tyr  
 35 40 45

Leu Ala Ala Gly Lys Asp Glu Arg Ala Arg Ile Arg Val Glu His Ile  
 50 55 60

Ile Arg Glu Asp Tyr Leu Val Glu Ala Met Glu Ile Leu Glu Leu Tyr  
 65 70 75 80

Cys Asp Leu Leu Leu Ala Arg Phe Gly Leu Ile Gln Ser Met Lys Glu  
 85 90 95

Leu Asp Ser Gly Leu Ala Glu Ser Val Ser Thr Leu Ile Trp Ala Ala  
 100 105 110

Pro Arg Leu Gln Ser Glu Val Ala Glu Leu Lys Ile Val Ala Asp Gln  
 115 120 125

Leu Cys Ala Lys Tyr Ser Lys Glu Tyr Gly Lys Leu Cys Arg Thr Asn  
 130 135 140

Gln Ile Gly Thr Val Asn Asp Arg Leu Met His Lys Leu Ser Val Glu  
 145 150 155 160

Ala Pro Pro Lys Ile Leu Val Glu Arg Tyr Leu Ile Glu Ile Ala Lys  
 165 170 175

Asn Tyr Asn Val Pro Tyr Glu Pro Asp Ser Val Val Met Ala Glu Ala  
 180 185 190

Pro Pro Gly Val Glu Thr Asp Leu Ile Asp Val Gly Phe Thr Asp Asp  
 195 200 205

Val Lys Lys Gly Gly Pro Gly Arg Gly Gly Ser Gly Gly Phe Thr Ala

210

215

220

Pro Val Gly Gly Pro Asp Gly Thr Val Pro Asp Ala His Ala His Ala  
 225 230 235 240

Tyr Ala Ile Cys Lys Tyr Ala Phe Leu Ile Ser Thr Ala Lys Gly Thr  
 245 250 255

Ile Arg Phe Gln Trp Thr Ala Asn Gly Asp Leu Ser Gly Leu Ser Gln  
 260 265 270

Tyr Ser Ser Thr Ser Asp Thr Ser Asn Ser Pro Ile Val  
 275 280 285

&lt;210&gt; 1405

&lt;211&gt; 196

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (113)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1405

Arg Val Thr Phe Asn Asn Leu Ser Ile Ser Gly Glu Leu Glu Ala Val  
 1 5 10 15

Gln Asn Met Val Ser Thr Val Glu Cys Ala Leu Lys His Val Ser Asp  
 20 25 30

Trp Leu Asp Glu Thr Asn Lys Gly Thr Lys Thr Glu Gly Glu Thr Glu  
 35 40 45

Val Lys Lys Asp Glu Ala Gly Glu Asn Tyr Ser Lys Asp Gln Gly Gly  
 50 55 60

Arg Thr Leu Cys Gly Val Met Arg Ile Gly Leu Val Ala Lys Gly Leu  
 65 70 75 80

Leu Ile Lys Asp Asp Met Asp Leu Glu Leu Val Leu Met Cys Lys Asp  
 85 90 95

Lys Pro Thr Glu Thr Leu Leu Asn Thr Val Lys Asp Asn Leu Pro Ile  
 100 105 110

Xaa Ile Gln Lys Leu Thr Glu Glu Lys Tyr Gln Val Glu Gln Cys Val  
 115 120 125

Asn Glu Ala Ser Ile Ile Ile Arg Asn Thr Lys Glu Pro Thr Leu Thr  
130 135 140

Leu Lys Val Ile Leu Thr Ser Pro Leu Ile Arg Asp Glu Leu Glu Lys  
145 150 155 160

Lys Asp Gly Glu Asn Val Ser Met Lys Asp Pro Pro Asp Leu Leu Asp  
165 170 175

Arg Gln Lys Cys Leu Asn Ala Leu Ala Ser Leu Arg His Ala Lys Trp  
180 185 190

Phe Gln Ala Arg  
195

<210> 1406

<211> 329

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (312)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1406

Pro Pro Arg Pro Leu Ser Ala Arg Lys Leu Trp Pro Pro Leu Pro Pro  
1 5 10 15

Pro Pro Thr Arg Thr Pro Ala Glu Pro Pro Arg Pro Arg Gly Arg Asn  
20 25 30

Pro Ala Ser Asn Asn Ser Asn Ser Leu Asn Val Asn Asn Gly Val Pro  
35 40 45

Gly Gly Ala Ala Ala Ala Ser Ser Ala Thr Val Ala Ala Ala Ser Ala  
50 55 60

Thr Thr Ala Ala Ser Ser Ser Leu Ala Thr Pro Glu Leu Gly Ser Ser  
65 70 75 80

Leu Lys Lys Lys Lys Arg Leu Ser Gln Ser Asp Glu Asp Val Ile Arg  
85 90 95

Leu Ile Gly Gln His Leu Asn Gly Leu Gly Leu Asn Gln Thr Val Asp  
100 105 110

Leu Leu Met Gln Glu Ser Gly Cys Arg Leu Glu His Pro Ser Ala Thr  
115 120 125

Lys Phe Arg Asn His Val Met Glu Gly Asp Trp Asp Lys Ala Glu Asn  
 130 135 140

Asp Leu Asn Glu Leu Lys Pro Leu Val His Ser Pro His Ala Ile Val  
 145 150 155 160

Val Arg Gly Ala Leu Glu Ile Ser Gln Thr Leu Leu Gly Ile Ile Val  
 165 170 175

Arg Met Lys Phe Leu Leu Leu Gln Gln Lys Tyr Leu Glu Tyr Leu Glu  
 180 185 190

Asp Gly Lys Val Leu Glu Ala Leu Gln Val Leu Arg Cys Glu Leu Thr  
 195 200 205

Pro Leu Lys Tyr Asn Thr Glu Arg Ile His Val Leu Ser Gly Tyr Leu  
 210 215 220

Met Cys Ser His Ala Glu Asp Leu Arg Ala Lys Ala Glu Trp Glu Gly  
 225 230 235 240

Lys Gly Thr Ala Ser Arg Ser Lys Leu Leu Asp Lys Leu Gln Thr Tyr  
 245 250 255

Leu Pro Pro Ser Val Met Leu Pro Pro Arg Arg Leu Gln Thr Leu Leu  
 260 265 270

Arg Gln Ala Val Glu Leu Gln Arg Asp Arg Cys Leu Tyr His Asn Thr  
 275 280 285

Lys Leu Asp Asn Asn Leu Asp Ser Val Ser Leu Leu Ile Asp His Val  
 290 295 300

Cys Ser Lys Arg Gln Phe Pro Xaa Leu Tyr Ala Ala Asp Thr Tyr Gly  
 305 310 315 320

Ser Ile Val Met Asn Phe Gly Ser Cys  
 325

<210> 1407

<211> 713

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (10)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (134)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (280)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (282)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (322)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1407  
Ser Pro Gly Pro Gln Pro His Ser Xaa Xaa Arg Ser Pro Pro Pro Pro  
1 5 10 15  
Pro Leu Arg Pro Pro Pro Met Lys Arg Leu Pro Leu Leu Val Val Phe  
20 25 30  
Ser Thr Leu Leu Asn Cys Ser Tyr Thr Gln Asn Cys Thr Lys Thr Pro  
35 40 45  
Cys Leu Pro Asn Ala Lys Cys Glu Ile Arg Asn Gly Ile Glu Ala Cys  
50 55 60  
Tyr Cys Asn Met Gly Phe Ser Gly Asn Gly Val Thr Ile Cys Glu Asp  
65 70 75 80  
Asp Asn Glu Cys Gly Asn Leu Thr Gln Ser Cys Gly Glu Asn Ala Asn  
85 90 95  
Cys Thr Asn Thr Glu Gly Ser Tyr Tyr Cys Met Cys Val Pro Gly Phe  
100 105 110  
Arg Ser Ser Ser Asn Gln Asp Arg Phe Ile Thr Asn Asp Gly Thr Val  
115 120 125



Cys Ile Glu Asn Val Xaa Ala Asn Cys His Leu Asp Asn Val Cys Ile  
130 135 140

Ala Ala Asn Ile Asn Lys Thr Leu Thr Lys Ile Arg Ser Ile Lys Glu  
145 150 155 160

Pro Val Ala Leu Leu Gln Glu Val Tyr Arg Asn Ser Val Thr Asp Leu  
165 170 175

Ser Pro Thr Asp Ile Ile Thr Tyr Ile Glu Ile Leu Ala Glu Ser Ser  
180 185 190

Ser Leu Leu Gly Tyr Lys Asn Asn Thr Ile Ser Ala Lys Asp Thr Leu  
195 200 205

Ser Asn Ser Thr Leu Thr Glu Phe Val Lys Thr Val Asn Asn Phe Val  
210 215 220

Gln Arg Asp Thr Phe Val Val Trp Asp Lys Leu Ser Val Asn His Arg  
225 230 235 240

Arg Thr His Leu Thr Lys Leu Met His Thr Val Glu Gln Ala Thr Leu  
245 250 255

Arg Ile Ser Gln Ser Phe Gln Lys Thr Thr Glu Phe Asp Thr Asn Ser  
260 265 270

Thr Asp Ile Ala Leu Lys Val Xaa Phe Xaa Asp Ser Tyr Asn Met Lys  
275 280 285

His Ile His Pro His Met Asn Met Asp Gly Asp Tyr Ile Asn Ile Phe  
290 295 300

Pro Lys Arg Lys Ala Ala Tyr Asp Ser Asn Gly Asn Val Ala Val Ala  
305 310 315 320

Phe Xaa Tyr Tyr Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn  
325 330 335

Phe Leu Leu Lys Pro Gln Asn Tyr Asp Asn Ser Glu Glu Glu Glu Arg  
340 345 350

Val Ile Ser Ser Val Ile Ser Val Ser Met Ser Ser Asn Pro Pro Thr  
355 360 365

Leu Tyr Glu Leu Glu Lys Ile Thr Phe Thr Leu Ser His Arg Lys Val  
370 375 380

Thr Asp Arg Tyr Arg Ser Leu Cys Ala Phe Trp Asn Tyr Ser Pro Asp  
385 390 395 400

Thr Met Asn Gly Ser Trp Ser Ser Glu Gly Cys Glu Leu Thr Tyr Ser  
405 410 415

Asn Glu Thr His Thr Ser Cys Arg Cys Asn His Leu Thr His Phe Ala  
420 425 430

Ile Leu Met Ser Ser Gly Pro Ser Ile Gly Ile Lys Asp Tyr Asn Ile  
435 440 445

Leu Thr Arg Ile Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu  
450 455 460

Ala Ile Cys Ile Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr  
465 470 475 480

Arg Thr Thr Ile His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu  
485 490 495

Leu Val Phe Leu Val Gly Ile Asn Thr Asn Thr Asn Lys Leu Phe Cys  
500 505 510

Ser Ile Ile Ala Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala  
515 520 525

Trp Met Cys Ile Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val  
530 535 540

Ile Tyr Asn Lys Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr  
545 550 555 560

Leu Ser Pro Ala Val Val Val Gly Phe Ser Ala Ala Leu Gly Tyr Arg  
565 570 575

Tyr Tyr Gly Thr Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe  
580 585 590

Ile Trp Ser Phe Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu  
595 600 605

Leu Ala Phe Gly Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly  
610 615 620

Leu Lys Pro Glu Val Ser Cys Phe Glu Asn Ile Arg Ser Cys Ala Arg  
625 630 635 640

Gly Ala Leu Ala Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly  
645 650 655

Val Leu His Val Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr  
660 665 670

Val Ser Asn Ala Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val  
675 680 685

Leu Ser Arg Lys Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val  
690 695 700

Pro Cys Cys Phe Gly Cys Leu Ser Cys  
705 710

<210> 1408

<211> 336

<212> PRT

<213> Homo sapiens

<400> 1408

Gln Arg Gly His Gln Gly Cys Arg Arg Ala Arg Asn Cys Arg Val Gln  
1 5 10 15

His Pro Val Cys Ser Arg Gly Arg Asp Ser Gly Leu Tyr His Leu Pro  
20 25 30

His Pro Gln Pro Val Pro Glu Asn Thr Trp Leu Tyr Gln Ala Leu Arg  
35 40 45

Glu Gly Thr Arg Val Gln Ser Val Glu Gln Ile Arg Glu Val Ala Ser  
50 55 60

Gly Ala Ala Arg Ile Arg Gly Glu Thr Leu Gly Leu Ile Gly Phe Gly  
65 70 75 80

Arg Thr Gly Gln Ala Val Ala Val Arg Ala Lys Ala Phe Gly Phe Ser  
85 90 95

Val Ile Phe Tyr Asp Pro Tyr Leu Gln Asp Gly Ile Glu Arg Ser Leu  
100 105 110

Gly Val Gln Arg Val Tyr Thr Leu Gln Asp Leu Leu Tyr Gln Ser Asp  
115 120 125

Cys Val Ser Leu His Cys Asn Leu Asn Glu His Asn His His Leu Ile  
130 135 140

Asn Asp Phe Thr Ile Lys Gln Met Arg Gln Gly Ala Phe Leu Val Asn  
145 150 155 160

Ala Ala Arg Gly Gly Leu Val Asp Glu Lys Ala Leu Ala Gln Ala Leu  
165 170 175

Lys Glu Gly Arg Ile Arg Gly Ala Ala Leu Asp Val His Glu Ser Glu

180	185	190
Pro Phe Ser Phe Ala Gln Gly	Pro Leu Lys Asp Ala	Pro Asn Leu Ile
195	200	205
Cys Thr Pro His Thr Ala Trp Tyr Ser Glu Gln Ala Ser Leu Glu Met		
210	215	220
Arg Glu Ala Ala Ala Thr Glu Ile Arg Arg Ala Ile Thr Gly Arg Ile		
225	230	235
Pro Glu Ser Leu Arg Asn Cys Val Asn Lys Glu Phe Phe Val Thr Ser		
245	250	255
Ala Pro Trp Ser Val Ile Asp Gln Gln Ala Ile His Pro Glu Leu Asn		
260	265	270
Gly Ala Thr Tyr Arg Tyr Pro Pro Gly Ile Val Gly Val Ala Pro Gly		
275	280	285
Gly Leu Pro Ala Ala Met Glu Gly Ile Ile Pro Gly Gly Ile Pro Val		
290	295	300
Thr His Asn Leu Pro Thr Val Ala His Pro Ser Gln Ala Pro Ser Pro		
305	310	315
Asn Gln Pro Thr Lys His Gly Asp Asn Arg Glu His Pro Asn Glu Gln		
325	330	335

&lt;210&gt; 1409

&lt;211&gt; 76

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (73)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (74)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1409

Glu Ala Glu Glu Asp Thr Ser Glu Arg Ser Glu Glu Lys Arg Ser Val

1

5

10

15

Asn Cys Trp Asp Leu Gly Asp Gln Val Gln Gly Gly Glu Tyr Lys Leu  
20 25 30

Ser Leu Phe Gly Phe Ala Ile Leu Gly Leu Thr Lys Pro Cys Ser Ile  
35 40 45

Ser Ser Ile Leu Gly Asn Asn Leu Leu Arg Trp Ala Phe Ile Phe Cys  
50 55 60

Phe Pro Glu Leu Glu Ile Ser Ile Xaa Xaa Lys Leu  
65 70 75

&lt;210&gt; 1410

&lt;211&gt; 236

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (157)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (167)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (181)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (183)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1410

His Ala Ala Ser Thr Thr Cys Pro Glu Gln Met Asp Cys Ser Pro Thr  
1 5 10 15

Asp Ser Ser Ser Ala Ser Pro Gly Ala Ser Thr Thr Ser Thr Pro Gly  
20 25 30

Ala Ser Pro Ala Pro Arg Ser Arg Lys Pro Gly Ala Val Ile Glu Ser  
35 40 45

Phe Val Asn His Ala Pro Gly Val Phe Ser Gly Thr Phe Ser Gly Thr  
 50 55 60  
 Leu His Pro Asn Cys Gln Asp Ser Ser Gly Arg Pro Arg Arg Asp Ile  
 65 70 75 80  
 Gly Thr Ile Leu Gln Ile Leu Asn Asp Leu Leu Ser Ala Thr Arg His  
 85 90 95  
 Tyr Gln Gly Met Pro Pro Ser Leu Ala Gln Leu Arg Cys His Ala Gln  
 100 105 110  
 Cys Ser Pro Ala Ser Pro Ala Pro Asp Leu Ala Pro Arg Thr Thr Ser  
 115 120 125  
 Cys Glu Lys Leu Thr Ala Ala Pro Ser Ala Ser Leu Leu Gln Gly Gln  
 130 135 140  
 Ser Gln Ile Arg Met Cys Lys Pro Pro Gly Asp Arg Xaa Ser Ala Asp  
 145 150 155 160  
 Arg Lys Pro Arg His Ala Xaa Lys Val Glu Arg Leu Gln Leu Leu Leu  
 165 170 175  
 His Glu Lys Arg Xaa Ser Xaa Lys Gly Pro Ala Gly Pro Arg Val Ser  
 180 185 190  
 Val Pro Leu Val Thr Gln Pro Gln Gly Gly Arg Ser Asp Ser Ser Ser  
 195 200 205  
 Ser Gly Gly Gly Gly Thr Gln Ala Gln Ala Ser Gly Leu Gly Leu Asp  
 210 215 220  
 Phe Glu Glu Leu Arg Met Glu Ala Arg Ser Gln Pro  
 225 230 235

&lt;210&gt; 1411

&lt;211&gt; 280

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1411

Asn Trp Gln Cys Cys Val Lys Thr Met Val Tyr His His Met Thr Glu  
 1 5 10 15

Glu Glu Arg Phe Glu Val Asp Gln Leu Gln Gly Leu Arg Asn Ser Val  
 20 25 30

Arg Met Glu Leu Gln Asp Leu Glu Leu Gln Leu Glu Glu Arg Leu Leu

35	40	45
Gly Leu Glu Glu Gln Leu Arg Ala Val Arg Met Pro Ser Pro Phe Arg		
50	55	60
Ser Ser Ala Leu Met Gly Met Cys Gly Ser Arg Ser Ala Asp Asn Leu		
65	70	75 80
Ser Cys Pro Ser Pro Leu Asn Val Met Glu Pro Val Thr Glu Leu Met		
85	90	95
Gln Glu Gln Ser Tyr Leu Lys Ser Glu Leu Gly Leu Gly Leu Gly Glu		
100	105	110
Met Gly Phe Glu Ile Pro Pro Gly Glu Ser Ser Glu Ser Val Phe Ser		
115	120	125
Gln Ala Thr Ser Glu Ser Ser Ser Val Cys Ser Gly Pro Ser His Ala		
130	135	140
Asn Arg Arg Thr Gly Val Pro Ser Thr Ala Ser Val Gly Lys Ser Lys		
145	150	155 160
Thr Pro Leu Val Ala Arg Lys Lys Val Phe Arg Ala Ser Val Ala Leu		
165	170	175
Thr Pro Thr Ala Pro Ser Arg Thr Gly Ser Val Gln Thr Pro Pro Asp		
180	185	190
Leu Glu Ser Ser Glu Glu Val Asp Ala Ala Glu Gly Ala Pro Glu Val		
195	200	205
Val Gly Pro Lys Ser Glu Val Glu Glu Gly His Gly Lys Leu Pro Ser		
210	215	220
Met Pro Ala Ala Glu Glu Met His Lys Asn Val Glu Gln Asp Glu Leu		
225	230	235 240
Gln Gln Val Ile Arg Glu Ile Lys Glu Ser Ile Val Gly Glu Ile Arg		
245	250	255
Arg Glu Ile Val Ser Gly Leu Leu Ala Ala Val Ser Ser Ser Lys Ala		
260	265	270
Ser Asn Ser Lys Gln Asp Tyr His		
275	280	

&lt;210&gt; 1412

&lt;211&gt; 96

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (93)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (96)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1412

Pro Gln His Thr Thr Pro Pro Pro Thr Glu Thr Gly Thr Ser Gly Leu  
1 5 10 15

Ser Ser Gly Val Ser Gly Ser Thr Thr Ala Ala Ser Ser Pro Xaa Gly  
20 25 30

Leu Val Glu Arg Glu Gly Val Val Leu Val Phe Gly Pro Leu Thr Ala  
35 40 45

Asp Ser Gln Glu Val Leu Arg Arg Ala Trp His Trp Ala Gln Arg Leu  
50 55 60

Gln Asp Tyr Cys Ala Thr Gln Pro Ala Leu Phe His Val Gly Phe Pro  
65 70 75 80

Val Ser Leu Ile Asp His Glu Gly Phe Gln Val Cys Xaa Asp Ser Xaa  
85 90 95

<210> 1413

<211> 172

<212> PRT

<213> Homo sapiens

<400> 1413

Phe Ser Val Phe Val Leu Tyr Ser Leu Arg Asn Ala Ser Gly Leu Thr  
1 5 10 15



Ala Ala Asp Ile Ala Gln Thr Gln Gly Phe Gln Glu Cys Ala Gln Phe  
20 25 30

Leu Leu Asn Leu Gln Asn Cys His Leu Asn His Phe Tyr Asn Asn Gly  
35 40 45

Ile Leu Asn Gly Gly His Gln Asn Val Phe Pro Asn His Ile Ser Val  
50 55 60

Gly Thr Asn Arg Lys Arg Cys Leu Glu Asp Ser Glu Asp Phe Gly Val  
65 70 75 80

Lys Lys Ala Arg Thr Glu Ala Gln Ser Leu Asp Ser Ala Val Pro Leu  
85 90 95

Thr Asn Gly Asp Thr Glu Asp Asp Ala Asp Lys Met His Val Asp Arg  
100 105 110

Glu Phe Ala Val Val Thr Gly Gly Ser Gly Gln Phe Pro Val Ser Cys  
115 120 125

Asn Asn Asn Pro Met Val Glu Asp Thr Lys Gln Gln Glu Ser Gly Ser  
130 135 140

Val Gly Pro Lys Glu Ile Glu Ile Tyr Thr Val Ser Ala Met Gln Thr  
145 150 155 160

Pro Cys Arg Cys Arg Asn Gln Tyr Ala Tyr Tyr Phe  
165 170

<210> 1414

<211> 264

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (85)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (107)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (173)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1414

Leu Cys Ala Pro Arg Ser Pro Arg Pro Gly Thr Gly Asp Ala Ala Pro  
 1 5 10 15

Pro Ser Glu Pro Xaa Ala Ser Ala Ser Gly Thr Asp Leu Leu Gly Trp  
 20 25 30

Leu Ile Lys Glu Glu Ala Ala Ala Met Ser Ala Val Gly Xaa Ala Thr  
 35 40 45

Pro Tyr Leu His His Pro Gly Asp Ser His Ser Gly Arg Val Ser Phe  
 50 55 60

Leu Gly Ala Gln Leu Pro Pro Glu Val Ala Ala Met Ala Arg Leu Leu  
 65 70 75 80

Gly Asp Leu Asp Xaa Ser Thr Phe Arg Lys Leu Leu Lys Phe Val Val  
 85 90 95

Ser Ser Leu Gln Gly Glu Asp Cys Arg Glu Xaa Leu Gln Arg Leu Gly  
 100 105 110

Val Ser Ala Asn Leu Pro Glu Glu Gln Leu Gly Ala Leu Leu Ala Gly  
 115 120 125

Met His Thr Leu Leu Gln Gln Ala Leu Arg Leu Pro Pro Thr Ser Leu  
 130 135 140

Lys Pro Asp Thr Phe Arg Asp Gln Leu Gln Glu Leu Cys Ile Pro Gln  
 145 150 155 160

Asp Leu Val Gly Asp Leu Ala Ser Val Val Phe Gly Xaa Pro Ala Ala  
 165 170 175

Leu Leu Asp Ser Val Ala Gln Gln Gln Gly Ala Trp Leu Pro His Val  
 180 185 190

Ala Asp Phe Arg Trp Arg Val Asp Val Ala Ile Ser Thr Ser Ala Leu  
 195 200 205

Ala Arg Ser Leu Gln Pro Ser Val Leu Met Gln Leu Lys Leu Ser Asp  
210 215 220

Gly Ser Ala Tyr Arg Phe Glu Val Pro Thr Ala Lys Phe Gln Glu Leu  
225 230 235 240

Arg Tyr Ser Val Ala Leu Val Leu Lys Glu Met Ala Asp Leu Glu Lys  
245 250 255

Arg Cys Glu Arg Arg Leu Gln Asp  
260

<210> 1415

<211> 579

<212> PRT

<213> Homo sapiens

<400> 1415

Ala Ala Asp Arg Gly Arg Gly Pro Gly Ala His Arg Pro Ile Ser Gly  
1 5 10 15

Asn Met Ala Thr Glu His Val Asn Gly Asn Gly Thr Glu Glu Pro Met  
20 25 30

Asp Thr Thr Ser Ala Val Ile His Ser Glu Asn Phe Gln Thr Leu Leu  
35 40 45

Asp Ala Gly Leu Pro Gln Lys Val Ala Glu Lys Leu Asp Glu Ile Tyr  
50 55 60

Val Ala Gly Leu Val Ala His Ser Asp Leu Asp Glu Arg Ala Ile Glu  
65 70 75 80

Ala Leu Lys Glu Phe Asn Glu Asp Gly Ala Leu Ala Val Leu Gln Gln  
85 90 95

Phe Lys Asp Ser Asp Leu Ser His Val Gln Asn Lys Ser Ala Phe Leu  
100 105 110

Cys Gly Val Met Lys Thr Tyr Arg Gln Arg Glu Lys Gln Gly Thr Lys  
115 120 125

Val Ala Asp Ser Ser Lys Gly Pro Asp Glu Ala Lys Ile Lys Ala Leu  
130 135 140

Leu Glu Arg Thr Gly Tyr Thr Leu Asp Val Thr Thr Gly Gln Arg Lys  
145 150 155 160

Tyr Gly Gly Pro Pro Pro Asp Ser Val Tyr Ser Gly Gln Gln Pro Ser

165 170 175

Val Gly Thr Glu Ile Phe Val Gly Lys Ile Pro Arg Asp Leu Phe Glu  
180 185 190

Asp Glu Leu Val Pro Leu Phe Glu Lys Ala Gly Pro Ile Trp Asp Leu  
195 200 205

Arg Leu Met Met Asp Pro Leu Thr Gly Leu Asn Arg Gly Tyr Ala Phe  
210 215 220

Val Thr Phe Cys Thr Lys Glu Ala Ala Gln Glu Ala Val Lys Leu Tyr  
225 230 235 240

Asn Asn His Glu Ile Arg Ser Gly Lys His Ile Gly Val Cys Ile Ser  
245 250 255

Val Ala Asn Asn Arg Leu Phe Val Gly Ser Ile Pro Lys Ser Lys Thr  
260 265 270

Lys Glu Gln Ile Leu Glu Glu Phe Ser Lys Val Thr Glu Gly Leu Thr  
275 280 285

Asp Val Ile Leu Tyr His Gln Pro Asp Asp Lys Lys Lys Asn Arg Gly  
290 295 300

Phe Cys Phe Leu Glu Tyr Glu Asp His Lys Thr Ala Ala Gln Ala Arg  
305 310 315 320

Arg Arg Leu Met Ser Gly Lys Val Lys Val Trp Gly Asn Val Gly Thr  
325 330 335

Val Glu Trp Ala Asp Pro Ile Glu Asp Pro Asp Pro Glu Val Met Ala  
340 345 350

Lys Val Lys Val Leu Phe Val Arg Asn Leu Ala Asn Thr Val Thr Glu  
355 360 365

Glu Ile Leu Glu Lys Ala Phe Ser Gln Phe Gly Lys Leu Glu Arg Val  
370 375 380

Lys Lys Leu Lys Asp Tyr Ala Phe Ile His Phe Asp Glu Arg Asp Gly  
385 390 395 400

Ala Val Lys Ala Met Glu Glu Met Asn Gly Lys Asp Leu Glu Gly Glu  
405 410 415

Asn Ile Glu Ile Val Phe Ala Lys Pro Pro Asp Gln Lys Arg Lys Glu  
420 425 430

Arg Lys Ala Gln Arg Gln Ala Ala Lys Asn Gln Met Tyr Asp Asp Tyr

435

440

445

Tyr Tyr Tyr Gly Pro Pro His Met Pro Pro Pro Thr Arg Gly Arg Gly  
450 455 460

Arg Gly Gly Arg Gly Gly Tyr Gly Tyr Pro Pro Asp Tyr Tyr Gly Tyr  
465 470 475 480

Glu Asp Tyr Tyr Asp Tyr Tyr Gly Tyr Asp Tyr His Asn Tyr Arg Gly  
485 490 495

Gly Tyr Glu Asp Pro Tyr Tyr Gly Tyr Glu Asp Phe Gln Val Gly Ala  
500 505 510

Arg Gly Arg Gly Gly Arg Gly Ala Arg Gly Ala Ala Pro Ser Arg Gly  
515 520 525

Arg Gly Ala Ala Pro Pro Arg Gly Arg Ala Gly Tyr Ser Gln Arg Gly  
530 535 540

Gly Pro Gly Ser Ala Arg Gly Val Arg Gly Ala Arg Gly Gly Ala Gln  
545 550 555 560

Gln Gln Arg Gly Arg Gly Gln Gly Lys Gly Val Glu Ala Gly Pro Asp  
565 570 575

Leu Leu Gln

<210> 1416

<211> 230

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (196)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (204)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (230)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1416

Ser Thr His Ala Ser Ala His Ala Ser Glu Pro Gly Gln Gly Gly Trp  
1 5 10 15

Pro Glu Val Pro Ala Glu Gly Ala Ser Arg Pro Cys Ala Ala Val Pro  
20 25 30

Gly Gly Gln Arg Gly Cys Pro Ala Cys Pro Leu Ala Gly Glu Arg Glu  
35 40 45

Leu Thr His Leu Leu Leu Pro Ala Ser Glu Gly Asp Thr Glu Pro Gln  
50 55 60

Val Thr Pro His His Gln Arg Arg Cys Leu Cys Leu Ser Asp Lys Tyr  
65 70 75 80

Ser Gln Ala Cys His Pro Leu Gly Ser Lys Val Arg Arg Cys Arg Lys  
85 90 95

Pro Gly Pro Arg Asp Arg Gln Leu Thr Arg Val Asp Lys Ser Pro Glu  
100 105 110

Met Trp Cys Ile Val Leu Phe Ser Leu Leu Ala Trp Val Tyr Ala Glu  
115 120 125

Pro Thr Met Tyr Gly Glu Ile Leu Ser Pro Asn Tyr Pro Gln Ala Tyr  
130 135 140

Pro Ser Glu Val Glu Lys Ser Trp Asp Ile Glu Val Pro Glu Gly Tyr  
145 150 155 160

Gly Ile His Leu Tyr Phe Thr His Leu Asp Ile Glu Leu Ser Glu Asn  
165 170 175

Cys Ala Tyr Asp Ser Val Gln Ile Ile Ser Gly Asp Thr Glu Glu Gly  
180 185 190

Arg Leu Cys Xaa Gln Arg Ser Ser Asn Asn Pro Xaa Leu Gln Leu Trp  
195 200 205

Lys Ser Ser Lys Ser His Thr Thr Asn Ser Lys Gly Gly Asn Pro Leu  
210 215 220

Phe Phe Leu Lys Lys Xaa  
225 230

&lt;210&gt; 1417

&lt;211&gt; 106

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1417

Ala Leu Pro Val Met Thr Ala Ala Gly Thr Gly Trp Pro Glu Ala Gly  
1 5 10 15

Xaa Leu Pro Glu Val Met Gly Asp Gly Leu Ala Asn Gln Ile Asn Asn  
20 25 30

Pro Glu Val Glu Val Asp Ile Thr Lys Pro Asp Met Thr Ile Arg Gln  
35 40 45

Gln Ile Met Gln Leu Lys Ile Met Thr Asn Arg Leu Arg Ser Leu Thr  
50 55 60

Thr Ala Thr Thr Trp Thr Ser Arg Thr Pro Xaa Thr Thr Ala Ala Ala  
65 70 75 80

Arg Ala Ala Val Met Ala Val Trp Met Thr Ser Ala Ala Gly Arg Ser  
85 90 95

Ala Gly Arg Ala Pro Ala Pro Gly Arg Pro  
100 105

<210> 1418

<211> 258

<212> PRT

<213> Homo sapiens

<400> 1418

Gly His Leu Leu Leu Cys Ala Trp Gly Pro Gly Gly Pro Gly Pro Leu  
1 5 10 15

Gly Pro Ser Glu Glu Asn Phe Asp Met Glu Ala Phe Thr Glu Met Met  
20 25 30

Glu Ala Tyr Val Pro Gly Phe Ala His Ile Pro Arg Gly Thr Ile Gly  
35 40 45

Asp Met Met Gln Lys Leu Ser Gly Gln Leu Ser Asp Ala Arg Asn Lys  
 50 55 60  
 Glu Asn Leu Gln Pro Gln Ser Ser Gly Val Gln Gly Gln Val Pro Ile  
 65 70 75 80  
 Ser Pro Glu Pro Leu Gln Arg Pro Glu Met Leu Lys Glu Glu Thr Arg  
 85 90 95  
 Ser Ser Ala Ala Ala Ala Ala Asp Thr Gln Asp Glu Ala Thr Gly Ala  
 100 105 110  
 Glu Glu Glu Leu Leu Pro Gly Val Asp Val Leu Leu Glu Val Phe Pro  
 115 120 125  
 Thr Cys Ser Val Glu Gln Ala Gln Trp Val Leu Ala Lys Ala Arg Gly  
 130 135 140  
 Asp Leu Glu Glu Ala Val Gln Met Leu Val Glu Gly Lys Glu Glu Gly  
 145 150 155 160  
 Pro Ala Ala Trp Glu Gly Pro Asn Gln Asp Leu Pro Arg Arg Leu Arg  
 165 170 175  
 Gly Pro Gln Lys Asp Glu Leu Lys Ser Phe Ile Leu Gln Lys Tyr Met  
 180 185 190  
 Met Val Asp Ser Ala Glu Asp Gln Lys Ile His Arg Pro Met Ala Pro  
 195 200 205  
 Lys Glu Ala Pro Lys Lys Leu Ile Arg Tyr Ile Asp Asn Gln Val Val  
 210 215 220  
 Ser Thr Lys Gly Glu Arg Phe Lys Asp Val Arg Asn Pro Glu Ala Glu  
 225 230 235 240  
 Glu Met Lys Ala Thr Tyr Ile Asn Leu Lys Pro Ala Arg Lys Tyr Arg  
 245 250 255  
 Phe His

&lt;210&gt; 1419

&lt;211&gt; 280

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1419

Leu Val Glu Pro Ala Met Ala Glu Pro Ala Ser Val Ala Ala Glu Ser



1	5	10	15
Leu Ala Gly Ser Arg Ala Arg Ala Ala Arg Thr Val Leu Gly Gln Val	20	25	30
Val Leu Pro Gly Glu Glu Leu Leu Leu Pro Glu Gln Glu Asp Ala Glu	35	40	45
Gly Pro Gly Gly Ala Val Glu Arg Pro Leu Ser Leu Asn Ala Arg Ala	50	55	60
Cys Ser Arg Val Arg Val Val Cys Gly Pro Gly Leu Arg Arg Cys Gly	65	70	75
Asp Arg Leu Leu Val Thr Lys Cys Gly Arg Leu Arg His Lys Glu Pro	85	90	95
Gly Ser Gly Ser Gly Gly Gly Val Tyr Trp Val Asp Ser Gln Gln Lys	100	105	110
Arg Tyr Val Pro Val Lys Gly Asp His Val Ile Gly Ile Val Thr Ala	115	120	125
Lys Ser Gly Asp Ile Phe Lys Val Asp Val Gly Gly Ser Glu Pro Ala	130	135	140
Ser Leu Ser Tyr Leu Ser Phe Glu Gly Ala Thr Lys Arg Asn Arg Pro	145	150	155
Asn Val Gln Val Gly Asp Leu Ile Tyr Gly Gln Phe Val Val Ala Asn	165	170	175
Lys Asp Met Glu Pro Glu Met Val Cys Ile Asp Ser Cys Gly Arg Ala	180	185	190
Asn Gly Met Gly Val Ile Gly Gln Asp Gly Leu Leu Phe Lys Val Thr	195	200	205
Leu Gly Leu Ile Arg Lys Leu Leu Ala Pro Asp Cys Glu Ile Ile Gln	210	215	220
Glu Val Gly Lys Leu Tyr Pro Leu Glu Ile Val Phe Gly Met Asn Gly	225	230	235
Arg Ile Trp Val Lys Ala Lys Thr Ile Gln Gln Thr Leu Ile Leu Ala	245	250	255
Asn Ile Leu Glu Ala Cys Glu His Met Thr Ser Asp Gln Arg Lys Gln	260	265	270
Ile Phe Ser Arg Leu Ala Glu Ser			

275

280

<210> 1420  
 <211> 147  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (10)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (104)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (105)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1420  
 Phe Pro Gly Thr Gly Ser Asp Gly Gly Xaa Pro Glu Thr Val Asp Ser  
   1                  5                  10                  15  
 Gly Arg Ser Glu Pro Pro Gly Ala Val Val Leu Pro Arg Leu Arg Glu  
                   20                  25                  30  
 Val Gly Arg Glu Arg Thr Trp Arg Pro Gly Ser Met Ala Gly Leu Glu  
                   35                  40                  45  
 Leu Leu Ser Asp Gln Gly Tyr Arg Val Asp Gly Arg Arg Ala Gly Glu  
   50                  55                  60  
 Leu Arg Lys Ile Gln Ala Arg Met Gly Val Phe Ala Gln Ala Asp Gly  
   65                  70                  75                  80  
 Ser Ala Tyr Ile Glu Gln Gly Asn Thr Lys Ala Leu Ala Val Val Tyr  
                   85                  90                  95  
 Gly Pro His Glu Ala Ser Gly Xaa Xaa Gly Trp Gly Ile Val Trp Pro  
                   100                  105                  110  
 Trp Glu Leu Arg Gly Ser Arg Ala Glu Arg Trp Leu Gly Asp Leu Arg  
   115                  120                  125  
 Gly Lys Ala Ala Arg Leu Ile Tyr Thr Ala Met Leu Ser Thr Ala Ser  
   130                  135                  140

His Ser Glu  
145

<210> 1421  
<211> 300  
<212> PRT  
<213> Homo sapiens

<400> 1421

Gly Leu Pro Ile Asn Cys Ile Cys Glu Arg Leu Asn Ile Ile Gly Glu  
1 5 10 15

Ile Asn Thr Asp Thr Val Tyr Arg Gln Ala Ile Asn Ser Lys Met Phe  
20 25 30

Glu Val Asp Met Lys Ile Ala Ala Met His Val Lys Arg Lys Gln Leu  
35 40 45

His Gln Leu Leu Pro Asn His Val Leu Gln Lys Lys Lys Lys His Ser  
50 55 60

Thr Glu Gly Val Lys Leu Thr Ala Leu Asn Asp Ser Ser Leu Asp Leu  
65 70 75 80

Ser Met Asp Ser Asp Asn Ser Met Ser Val Pro Ser Pro Thr Ser Ala  
85 90 95

Thr Lys Thr Ser Pro Leu Asn Ser Ser Gly Ser Ser Gln Gly Arg Asn  
100 105 110

Ser Pro Ala Pro Ala Val Thr Ala Ala Ser Val Thr Asn Ile Gln Ala  
115 120 125

Thr Glu Val Ser Val Pro Gln Val Asn Ser Ser Glu Ser Ser Gly Gly  
130 135 140

Thr Ser Ser Glu Ser Ile Pro Gln Thr Ala Thr Gln Pro Ala Ile Ser  
145 150 155 160

Pro Pro Pro Lys Pro Thr Val Ser Arg Val Val Ser Ser Thr Arg Leu  
165 170 175

Val Asn Pro Pro Pro Arg Ser Ser Gly Asn Ala Ala Thr Ser Gly Asn  
180 185 190

Ala Ala Thr Lys Ile Pro Thr Pro Ile Val Gly Val Lys Arg Thr Ser  
195 200 205

Ser Pro His Lys Glu Glu Ser Pro Lys Lys Thr Lys Thr Glu Glu Asp  
 210 215 220  
 Glu Thr Ser Glu Asp Ala Asn Cys Leu Ala Leu Ser Gly His Asp Lys  
 225 230 235 240  
 Thr Glu Ala Lys Glu Gln Leu Asp Thr Glu Thr Ser Thr Thr Gln Ser  
 245 250 255  
 Glu Thr Ile Gln Thr Ala Ala Ser Leu Leu Ala Ser Gln Lys Thr Ser  
 260 265 270  
 Ser Thr Asp Leu Ser Asp Ile Pro Ala Leu Pro Ala Asn Pro Ile Pro  
 275 280 285  
 Val Ile Lys Asn Ser Ile Lys Leu Arg Leu Asn Arg  
 290 295 300

&lt;210&gt; 1422

&lt;211&gt; 315

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (125)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (177)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1422

Asp Ser Pro Leu His Leu Tyr Gln Lys Asn Ala Arg Leu Lys Asn Val  
 1 5 10 15  
 Glu Phe Leu Leu Val Asn Arg Ile His Cys Gly Thr Arg His Gln Cys  
 20 25 30  
 Leu Gly Tyr Ile Lys Arg Arg Leu Ala Met Cys Ala Arg Arg Leu Gly  
 35 40 45  
 Arg Thr Arg Glu Ala Val Lys Met Met Arg Asp Leu Met Lys Glu Phe  
 50 55 60  
 Pro Leu Leu Ser Met Phe Asn Ile His Glu Asn Leu Leu Glu Ala Leu  
 65 70 75 80

Leu Glu Leu Gln Ala Tyr Ala Asp Val Gln Ala Val Leu Ala Lys Tyr  
85 90 95

Asp Asp Ile Ser Leu Pro Lys Ser Ala Thr Ile Cys Tyr Thr Ala Ala  
100 105 110

Leu Leu Lys Ala Arg Ala Val Ser Asp Lys Phe Ser Xaa Glu Ala Ala  
115 120 125

Ser Arg Arg Gly Leu Ser Thr Ala Glu Met Asn Ala Val Glu Ala Ile  
130 135 140

His Arg Ala Val Glu Phe Asn Pro His Val Pro Lys Tyr Leu Leu Glu  
145 150 155 160

Met Lys Ser Leu Ile Leu Pro Pro Glu His Ile Leu Lys Arg Gly Asp  
165 170 175

Xaa Glu Ala Ile Ala Tyr Ala Phe Phe His Leu Ala His Trp Lys Arg  
180 185 190

Val Glu Gly Ala Leu Asn Leu Leu His Cys Thr Trp Glu Gly Thr Phe  
195 200 205

Arg Met Ile Pro Tyr Pro Leu Glu Lys Gly His Leu Phe Tyr Pro Tyr  
210 215 220

Pro Ile Cys Thr Glu Thr Ala Asp Arg Glu Leu Leu Pro Ser Phe His  
225 230 235 240

Glu Val Ser Val Tyr Pro Lys Lys Glu Leu Pro Phe Phe Ile Leu Phe  
245 250 255

Thr Ala Gly Leu Cys Ser Phe Thr Ala Met Leu Ala Leu Leu Thr His  
260 265 270

Gln Phe Pro Glu Leu Met Gly Val Phe Ala Lys Ala Phe Leu Ser Thr  
275 280 285

Leu Phe Ala Pro Leu Asn Phe Val Met Glu Lys Val Glu Ser Ile Leu  
290 295 300

Pro Ser Ser Leu Trp His Gln Leu Thr Arg Ile  
305 310 315

&lt;210&gt; 1423

&lt;211&gt; 164

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1423

Ser Phe Pro Tyr Leu Phe Leu Gln Ser Lys Asn Arg Trp Cys Phe Ala  
1 5 10 15

Arg Glu Leu Val Lys Arg Tyr Gln Glu Lys Trp Asp Lys Leu Leu Leu  
20 25 30

Thr Ser Thr Glu Lys Ser His Val Asp Leu Phe Pro Lys Asp Ser Ile  
35 40 45

Ile Tyr Leu Thr Ala Asp Ser Pro Asn Val Met Thr Thr Phe Arg His  
50 55 60

Asp Lys Val Tyr Val Ile Gly Ser Phe Val Asp Lys Ser Met Gln Pro  
65 70 75 80

Gly Thr Ser Leu Ala Lys Ala Lys Arg Leu Asn Leu Ala Thr Glu Cys  
85 90 95

Leu Pro Leu Asp Lys Tyr Leu Gln Trp Glu Ile Gly Asn Lys Asn Leu  
100 105 110

Thr Leu Asp Gln Met Ile Arg Ile Leu Leu Cys Leu Lys Asn Asn Gly  
115 120 125

Asn Trp Gln Glu Ala Leu Gln Phe Val Pro Lys Arg Lys His Thr Gly  
130 135 140

Phe Leu Glu Ile Ser Gln His Ser Gln Glu Phe Ile Asn Arg Leu Lys  
145 150 155 160

Lys Ala Lys Thr

&lt;210&gt; 1424

&lt;211&gt; 81

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1424

Glu Val Trp Leu Phe Met His Pro Ser Ser Arg Ala Leu Lys Leu His  
1 5 10 15

Gly Leu Ile Lys Val Asp Ala Lys Gln Glu Arg Asn Lys Gln Lys Lys  
20 25 30

Lys Thr Ser Lys Met Phe Thr Lys Lys Leu Lys Gln Met Ser Ser Ala  
35 40 45

Cys Ser Ile Ser Gln Ser Leu Leu Ser Ser Val Val Asn Met Phe Gln  
 50 55 60

Met Thr Phe Ser Trp Lys Lys Asn Leu Tyr Asn Ile Val Glu Cys Glu  
 65 70 75 80

Gly

<210> 1425

<211> 172

<212> PRT

<213> Homo sapiens

<400> 1425

Met Gly Gly Asp Ala Gly Asp Arg Glu Pro Gly Pro Ala Ala Arg Ser  
 1 5 10 15

Leu Gly Glu Gly Gln Ala Gly Phe Ala Thr Ala Asp His Ser Gly Gln  
 20 25 30

Glu Arg Glu Thr Glu Lys Ala Met Asp Arg Leu Ala Arg Gly Thr Gln  
 35 40 45

Ser Ile Pro Asn Asp Ser Pro Ala Arg Gly Glu Gly Thr His Ser Glu  
 50 55 60

Glu Glu Gly Phe Ala Met Asp Glu Glu Asp Ser Asp Gly Glu Leu Asn  
 65 70 75 80

Thr Trp Glu Leu Ser Glu Gly Thr Asn Cys Pro Pro Lys Glu Gln Pro  
 85 90 95

Gly Asp Leu Phe Asn Glu Asp Trp Asp Ser Glu Leu Lys Ala Asp Gln  
 100 105 110

Gly Asn Pro Tyr Asp Ala Asp Asp Ile Gln Glu Ser Ile Ser Gln Glu  
 115 120 125

Leu Lys Pro Trp Val Cys Cys Ala Pro Gln Gly Asp Met Ile Tyr Asp  
 130 135 140

Pro Ser Trp His His Pro Pro Pro Leu Ile Pro Tyr Tyr Ser Lys Met  
 145 150 155 160

Val Phe Glu Thr Gly Gln Phe Asp Asp Ala Glu Asp  
 165 170

<210> 1426  
<211> 276  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (43)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (273)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (275)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1426  
Cys Lys Lys Gln Arg Leu Gln Gln Gln Gln Gln Gln Arg Arg Trp Gln  
1 5 10 15

Gln Gln Gln Gln Arg Arg Gln Gln Gln Gln Gln Arg Arg His Arg Trp  
20 25 30

Gln Gln Gln His His Gln Gln Gln Gln Gln Xaa Lys Ile Leu Ile Lys  
35 40 45

Ser Ser Pro Lys Leu Ser Val Tyr Pro Asp Pro His Leu His Ser Ser  
50 55 60

Gln Glu Arg Glu Arg Gly Lys Gly Gly Arg Lys Lys Lys Lys Pro Asn  
65 70 75 80

Asn Leu Ala Glu Thr Ser Gln Arg Met Leu Gln Asn Ser Ala Val Leu  
85 90 95

Leu Val Leu Val Ile Ser Ala Ser Ala Thr His Glu Ala Glu Gln Asn  
100 105 110

Asp Ser Val Ser Pro Arg Lys Ser Arg Val Ala Ala Gln Asn Ser Ala  
115 120 125

Glu Val Val Arg Cys Leu Asn Ser Ala Leu Gln Val Gly Cys Gly Ala  
130 135 140

Phe Ala Cys Leu Glu Asn Ser Thr Cys Asp Thr Asp Gly Met Tyr Asp



145                      150                      155                      160  
 Ile Cys Lys Ser Phe Leu Tyr Ser Ala Ala Lys Phe Asp Thr Gln Gly  
                          165                      170                      175  
 Lys Ala Phe Val Lys Glu Ser Leu Lys Cys Ile Ala Asn Gly Val Thr  
                          180                      185                      190  
 Ser Lys Val Phe Leu Ala Ile Arg Arg Cys Ser Thr Phe Gln Arg Met  
                          195                      200                      205  
 Ile Ala Glu Val Gln Glu Glu Cys Tyr Ser Lys Leu Asn Val Cys Ser  
                          210                      215                      220  
 Ile Ala Lys Arg Asn Pro Glu Ala Ile Thr Glu Val Val Gln Leu Pro  
 225                      230                      235                      240  
 Asn His Phe Ser Asn Arg Tyr Tyr Asn Arg Leu Val Arg Ser Leu Leu  
                          245                      250                      255  
 Glu Cys Asp Glu Asp Thr Val Ser Thr Ile Arg Asp Ser Leu Met Glu  
                          260                      265                      270  
 Xaa Ile Xaa Ala  
                          275

&lt;210&gt; 1427

&lt;211&gt; 166

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (36)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (54)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1427

Cys Asn Ser Arg Ser Gln Gly Leu Ala Leu Thr Gln Val Ala Ser Arg  
 1                      5                      10                      15

Ile Pro Val Gly Lys Arg Pro Ala Thr Ser Gly Leu Glu Leu Ala Cys  
 20                      25                      30

Val Pro Pro Xaa Pro Ala Pro Pro Thr Ser Arg Val Gln Cys Trp Ala

35                      40                      45  
 Arg Ala Ala Gln Glu Xaa Arg Thr Arg Arg Leu Ala Arg His Gln Thr  
     50                      55                      60  
 His Pro Thr Gln Arg Arg Gly Pro Gln Ala Arg Pro Val Val Pro Ser  
     65                      70                      75                      80  
 Arg Trp His Cys Ser Ser Pro Leu Leu Gln Val Gln Arg Pro His Arg  
                     85                      90                      95  
 Asn Thr Arg Ala Cys Ala Pro Glu Pro Ser Phe Arg Pro Phe Leu His  
                     100                      105                      110  
 Val Pro Thr Trp Asp Ala Glu Cys Ser Gly Ala Arg Thr Pro Ser Thr  
                     115                      120                      125  
 Ala Trp Thr Ser Ala Ala Val Lys Leu Arg Glu Ala Cys Leu Ser Gly  
                     130                      135                      140  
 Pro Gly Ser Gly Ser His Gln Leu Leu Leu Leu Thr Pro Arg Ser Lys  
     145                      150                      155                      160  
 Arg Arg Thr Gly Gly Gly  
                     165

<210> 1428

<211> 112

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1428

Gln Arg Gly Ser Thr Ser Glu Thr Pro Arg Arg Arg Ser Ser Val Trp  
     1                      5                      10                      15

Pro Ala Cys Xaa Gln Glu Gly Val Lys Ser Gly Met Tyr Val Val Ile  
                     20                      25                      30

Glu Val Lys Val Ala Thr Gln Glu Gly Lys Glu Ile Thr Cys Arg Ser

35 40 45  
Tyr Leu Met Thr Asn Tyr Glu Ser Xaa Pro Pro Ser Pro Gln Tyr Lys  
50 55 60  
Lys Ile Ile Cys Met Gly Ala Lys Glu Asn Gly Leu Pro Leu Glu Tyr  
65 70 75 80  
Gln Glu Lys Leu Lys Ala Ile Glu Pro Asn Asp Tyr Thr Gly Lys Val  
85 90 95  
Ser Glu Glu Ile Glu Asp Ile Ile Lys Lys Gly Glu Thr Gln Thr Leu  
100 105 110

<210> 1429

<211> 94

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (80)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1429

Pro Gly Thr His Val Ser Xaa Pro His Phe Leu Trp Gly Cys Ala Ser  
1 5 10 15  
Leu Arg Val Ala Asn Arg Met Ser Ser Val Gln Trp Trp Ser Gln Asp  
20 25 30  
Ser Val Cys Arg Ala Asp Phe Leu Ser Leu Leu Lys Thr Leu Asn Thr  
35 40 45  
Ala Val Phe Ser Ser Gln Gln Arg Asn Lys Ile Ser Leu Ser Asp Asn  
50 55 60  
Asp Asn Asn Lys Gln Ser Ile Ala Ser Thr Ala Phe Thr Ala Tyr Xaa  
65 70 75 80  
Lys Thr Tyr Tyr Val Pro Gly Thr Ser Thr Asp Phe Asn Leu

85

90

&lt;210&gt; 1430

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1430

Leu Ser Lys Gln Arg Pro Ala Val Gly Val His His Ala Phe His Leu  
1 5 10 15

Pro His Cys Phe Phe Ala Ser Leu Leu Glu Ser Pro Val Ser Pro Arg  
20 25 30

Leu Ala Met Asp Pro Asn Cys Ser Cys Ala Ala Gly Val Ser Cys Thr  
35 40 45

Cys Ala Gly Ser Cys Lys Cys Lys Glu Cys Lys Cys Thr Ser Cys Lys  
50 55 60

Lys Ser Cys Cys Ser Cys Cys Pro Val Gly Cys Ser Lys Cys Ala Gln  
65 70 75 80

Gly Cys Val Cys Lys Gly Ala Ser Glu Lys Cys Ser Cys Cys Asp  
85 90 95

&lt;210&gt; 1431

&lt;211&gt; 81

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (37)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (38)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1431

Pro Arg His Leu Ile Thr Ile Ser Tyr Val Val Ala Val Arg Asn Ala  
1 5 10 15

Phe Gln Val Gly Thr Trp Asp Pro Glu Ser Thr Phe Ala Pro Cys Gly  
20 25 30

Gly Arg Leu Pro Xaa Xaa Lys Met Glu Ala Gln Ser Pro Tyr Tyr Gln  
35 40 45

Thr Val Val Val Ser Arg Gly Arg Gly Glu Met Phe Ile Gly His Ser  
50 55 60

Leu Ser Trp Gly Val Ile Phe Ile Thr Ile His Val Asn Cys Thr Leu  
65 70 75 80

Val

<210> 1432

<211> 201

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (114)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (193)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (201)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1432

Thr His Trp Ser Lys Asp Tyr Gln Leu Val Thr Trp Ser Arg Asp Gln  
1 5 10 15

Thr Leu Arg Met Trp Arg Val Asp Ser Gln Met Gln Arg Leu Cys Ala  
20 25 30

Asn Asp Ile Leu Asp Gly Val Asp Glu Phe Ile Glu Ser Ile Ser Leu  
35 40 45

Leu Pro Glu Pro Glu Lys Thr Leu His Thr Glu Asp Thr Asp His Gln  
50 55 60

His Thr Ala Ser His Gly Glu Glu Glu Ala Leu Lys Glu Asp Pro Pro  
65 70 75 80

Arg Asn Leu Leu Glu Glu Arg Lys Ser Asp Gln Leu Gly Leu Pro Gln  
85 90 95

Thr Leu Gln Gln Glu Phe Ser Leu Ile Asn Val Gln Ile Arg Asn Val  
100 105 110

Asn Xaa Glu Met Asp Ala Ala Asp Arg Ser Cys Thr Val Ser Val His  
115 120 125

Cys Ser Asn His Arg Val Lys Met Leu Val Lys Phe Pro Ala Gln Tyr  
130 135 140

Pro Asn Asn Ala Ala Pro Ser Phe Gln Phe Ile Asn Pro Thr Thr Ile  
145 150 155 160

Thr Ser Thr Met Lys Ala Lys Leu Leu Lys Ile Leu Lys Asp Thr Ala  
165 170 175

Leu Gln Lys Val Lys Arg Gly Gln Ser Cys Leu Glu Pro Cys Leu Arg  
180 185 190

Xaa Ser Ser Pro Ala Leu Ser Pro Xaa  
195 200

<210> 1433  
<211> 150  
<212> PRT  
<213> Homo sapiens

<400> 1433  
Thr Val Val Ala Trp Glu Gly Gly Tyr His Thr Phe Ser Thr Cys Leu  
1 5 10 15

Thr Val Ser Trp Leu Gln Glu Asp Gln Tyr Asp His Leu Asp Ala Ala  
20 25 30

Asp Met Thr Lys Val Glu Lys Ser Thr Asn Glu Ala Met Glu Trp Met  
35 40 45

Asn Asn Lys Leu Asn Leu Gln Asn Lys Gln Ser Leu Thr Met Asp Pro  
50 55 60

Val Val Lys Ser Lys Glu Ile Glu Ala Lys Ile Lys Glu Leu Thr Ser  
65 70 75 80

Thr Cys Ser Pro Ile Ile Ser Lys Pro Lys Pro Lys Val Glu Pro Pro  
85 90 95

Lys Glu Glu Gln Lys Asn Ala Glu Gln Asn Gly Pro Val Asp Gly Gln

100

105

110

Gly Asp Asn Pro Gly Pro Gln Ala Ala Glu Gln Gly Thr Asp Thr Ala  
115 120 125

Val Leu Arg Ile Gln Thr Arg Ser Phe Leu Lys Trp Thr Leu Ile Asp  
130 135 140

Ser Asn Thr Cys Phe Tyr  
145 150

&lt;210&gt; 1434

&lt;211&gt; 145

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1434

His Glu Val Val Glu His Asn Pro Ile Ser Val Leu Asp Ser Pro Ser  
1 5 10 15

Ser Asp Cys Phe Ala Glu Trp Pro Gly Glu Leu Gly Arg Gly Trp Met  
20 25 30

Asp Arg Asn Lys His Thr Glu Ser Glu Val Gln Gly Arg Trp Ser Ser  
35 40 45

Phe Ser Leu Cys Arg Val Arg Met Lys Leu Cys Ser Gly Pro Trp Lys  
50 55 60

Cys Pro Trp Gln Lys Pro Asn Pro Arg Phe Gln Gly Thr Leu Pro Ser  
65 70 75 80

Cys Glu Arg Glu Arg Asn Cys Gly Gln Gly Leu Gly Leu Glu Ala Gly  
85 90 95

Arg Trp Asp His Ser Asp Thr Met Gln Asp Asn Arg Trp Gln Leu Gly  
100 105 110

Leu Lys Ile Lys Met Asn Tyr Met Ile Phe Asp Lys Leu Phe Asn Pro  
115 120 125

Trp Ser Leu His Phe Leu Tyr Lys Thr Gly Thr Ile Leu Ile Pro Thr  
130 135 140

Leu

145

<210> 1435  
<211> 46  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (45)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1435  
Ala Gly Ala Gln Trp His Asn His Ser Ser Leu Gln Pro Trp Asn Ser  
1 5 10 15  
Gln Ala Gln Val Ile Leu Pro Ser Ala Pro Ala Arg Val Ala Gly Thr  
20 25 30  
Pro Gly Met His His Tyr Asn Gln Leu Ile Phe Phe Xaa Phe  
35 40 45

<210> 1436  
<211> 95  
<212> PRT  
<213> Homo sapiens

<400> 1436  
Asn Ser Thr Met Ala Tyr Arg Gly Gln Gly Gln Lys Val Gln Lys Val  
1 5 10 15  
Met Val Gln Pro Ile Asn Leu Ile Phe Arg Tyr Leu Gln Asn Arg Ser  
20 25 30  
Arg Ile Gln Val Trp Leu Tyr Glu Gln Val Asn Met Arg Ile Glu Gly  
35 40 45  
Cys Ile Ile Gly Phe Asp Glu Tyr Met Asn Leu Val Leu Asp Asp Ala  
50 55 60  
Glu Glu Ile His Ser Lys Thr Lys Ser Arg Lys Gln Leu Gly Arg Ile  
65 70 75 80  
Met Leu Lys Gly Asp Asn Ile Thr Leu Leu Gln Ser Val Ser Asn  
85 90 95

<210> 1437  
<211> 113  
<212> PRT



<213> Homo sapiens

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1437

Gln Gly Ala Leu Gly Ser Pro Val Pro Val Ala Val Ala Pro Leu Thr  
1 5 10 15

Pro Pro Ser Xaa Cys Pro Ala Pro Pro Leu Arg Pro Pro His Thr Pro  
20 25 30

Leu Ala Leu Thr Thr Cys Ile Ser Pro Ala Cys Val His Pro Pro Gly  
35 40 45

Trp Leu Thr His Ser His Ser His Thr Gln Ile Ser Gly Thr Asn Gly  
50 55 60

Pro Arg Val Leu Arg Thr Pro Ala Gln Gly Leu Cys Arg Ser Leu Pro  
65 70 75 80

His Ala Phe Pro Ser Leu Thr Lys Pro Pro Ala Ala Ser Phe Lys Leu  
85 90 95

Gly Ala Pro Ala Leu Gly Leu Ser Cys Ala Leu Phe Phe Phe Phe Phe  
100 105 110

Phe

<210> 1438

<211> 122

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (16)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1438

Phe Leu His Thr Phe Asn Cys Ser Trp Ser Leu Thr Ser Pro Gly Xaa  
1 5 10 15

Arg Asp Val Leu Lys Gly Ser Gln Leu Trp Gln Val Thr Asp Ser Trp  
20 25 30

Glu Met Glu Arg Thr Lys Glu Tyr Ser Ser Cys Leu Thr Phe Leu Pro  
35 40 45

Thr Ala Asp Ile Val Gln Ala Arg Val Met Glu Glu Leu Asn Leu Leu  
50 55 60

Ala Ser Gln Ala Ala Pro Ile Pro Thr Ser Gln Cys Thr Ala Pro Pro  
65 70 75 80

His Leu Phe Ser Pro Leu Ser Leu Thr Ser Pro Phe Ile Met Ser His  
85 90 95

Lys Ser Gly Thr Val Gly Ser His Tyr Asn Leu Leu Cys His Arg Asp  
100 105 110

Ser Ile Phe Leu Ile Ser Asn His Val Ser  
115 120

<210> 1439  
<211> 323  
<212> PRT  
<213> Homo sapiens

<400> 1439  
Phe Val Ser Pro Ala Ile Asp Ser Thr Arg Gly Asp Ser Ser Ser Leu  
1 5 10 15

Val Ala Glu Leu Gln Glu Lys Leu Gln Glu Glu Lys Ala Lys Phe Leu  
20 25 30

Glu Gln Leu Glu Glu Gln Glu Lys Arg Lys Asn Glu Glu Met Gln Asn  
35 40 45

Val Arg Thr Ser Leu Ile Ala Glu Gln Gln Thr Asn Phe Asn Thr Val  
50 55 60

Leu Thr Arg Glu Lys Met Arg Lys Glu Asn Ile Ile Asn Asp Leu Ser  
65 70 75 80

Asp Lys Leu Lys Ser Thr Met Gln Gln Gln Glu Arg Asp Lys Asp Leu  
85 90 95

Ile Glu Ser Leu Ser Glu Asp Arg Ala Arg Leu Leu Glu Glu Lys Lys  
100 105 110

Lys Leu Glu Glu Glu Val Ser Lys Leu Arg Ser Ser Ser Phe Val Pro  
115 120 125

Ser Pro Tyr Val Ala Thr Ala Pro Glu Leu Tyr Gly Ala Cys Ala Pro

130

135

140

Glu Leu Pro Gly Glu Ser Asp Arg Ser Ala Val Glu Thr Ala Asp Glu  
 145 150 155 160

Gly Arg Val Asp Ser Ala Met Glu Thr Ser Met Met Ser Val Gln Glu  
 165 170 175

Asn Ile His Met Leu Ser Glu Glu Lys Gln Arg Ile Met Leu Leu Glu  
 180 185 190

Arg Thr Leu Gln Leu Lys Glu Glu Glu Asn Lys Arg Leu Asn Gln Arg  
 195 200 205

Leu Met Ser Gln Ser Met Ser Ser Val Ser Ser Arg His Ser Glu Lys  
 210 215 220

Ile Ala Ile Arg Asp Phe Gln Val Gly Asp Leu Val Leu Ile Ile Leu  
 225 230 235 240

Asp Glu Arg His Asp Asn Tyr Val Leu Phe Thr Val Ser Pro Thr Leu  
 245 250 255

Tyr Phe Leu His Ser Glu Ser Leu Pro Ala Leu Asp Leu Lys Pro Gly  
 260 265 270

Glu Gly Ala Ser Gly Ala Ser Arg Arg Pro Trp Val Leu Gly Lys Val  
 275 280 285

Met Glu Lys Glu Tyr Cys Gln Ala Lys Lys Ala Gln Asn Arg Phe Lys  
 290 295 300

Val Pro Leu Gly Thr Lys Phe Tyr Arg Val Lys Ala Val Ser Trp Asn  
 305 310 315 320

Lys Lys Val

<210> 1440

<211> 459

<212> PRT

<213> Homo sapiens

<400> 1440

Thr Arg Trp Trp Gly Pro Val Leu Trp Ser Lys Ser Arg Pro Pro Gly  
 1 5 10 15

Arg Thr Arg Gly Pro Ser Gly Trp Arg Val Gly Leu Thr Arg Thr Ser  
 20 25 30

Arg Pro Ala Ser Pro Ser Ala Leu Arg Thr Gly Asp Gly Ser Ser Arg  
 35 40 45  
 Pro Gly Thr Pro Pro Ala Ser Pro Arg Val Phe Glu Val Arg Gly Gly  
 50 55 60  
 Ser Gly Ala Ser Ala Arg Arg Ser Ala Arg Ser Leu Pro Ala Leu Glu  
 65 70 75 80  
 Ser Ala Ile Met Asp Val Leu Ala Glu Ala Asn Gly Thr Phe Ala Leu  
 85 90 95  
 Asn Leu Leu Lys Thr Leu Gly Lys Asp Asn Ser Lys Asn Val Phe Phe  
 100 105 110  
 Ser Pro Met Ser Met Ser Cys Ala Leu Ala Met Val Tyr Met Gly Ala  
 115 120 125  
 Lys Gly Asn Thr Ala Ala Gln Met Ala Gln Ile Leu Ser Phe Asn Lys  
 130 135 140  
 Ser Gly Gly Gly Gly Asp Ile His Gln Gly Phe Gln Ser Leu Leu Thr  
 145 150 155 160  
 Glu Val Asn Lys Thr Gly Thr Gln Tyr Leu Leu Arg Met Ala Asn Arg  
 165 170 175  
 Leu Phe Gly Glu Lys Ser Cys Asp Phe Leu Ser Ser Phe Arg Asp Ser  
 180 185 190  
 Cys Gln Lys Phe Tyr Gln Ala Glu Met Glu Glu Leu Asp Phe Ile Ser  
 195 200 205  
 Ala Val Glu Lys Ser Arg Lys His Ile Asn Thr Trp Val Ala Glu Lys  
 210 215 220  
 Thr Glu Gly Lys Ile Ala Glu Leu Leu Ser Pro Gly Ser Val Asp Pro  
 225 230 235 240  
 Leu Thr Arg Leu Val Leu Val Asn Ala Val Tyr Phe Arg Gly Asn Trp  
 245 250 255  
 Asp Glu Gln Phe Asp Lys Glu Asn Thr Glu Glu Arg Leu Phe Lys Val  
 260 265 270  
 Ser Lys Asn Glu Glu Lys Pro Val Gln Met Met Phe Lys Gln Ser Thr  
 275 280 285  
 Phe Lys Lys Thr Tyr Ile Gly Glu Ile Phe Thr Gln Ile Leu Val Leu  
 290 295 300

Pro Tyr Val Gly Lys Glu Leu Asn Met Ile Ile Met Leu Pro Asp Glu  
305 310 315 320

Thr Thr Asp Leu Arg Thr Val Glu Lys Glu Leu Thr Tyr Glu Lys Phe  
325 330 335

Val Glu Trp Thr Arg Leu Asp Met Met Asp Glu Glu Glu Val Glu Val  
340 345 350

Ser Leu Pro Arg Phe Lys Leu Glu Glu Ser Tyr Asp Met Glu Ser Val  
355 360 365

Leu Arg Asn Leu Gly Met Thr Asp Ala Phe Glu Leu Gly Lys Ala Asp  
370 375 380

Phe Ser Gly Met Ser Gln Thr Asp Leu Ser Leu Ser Lys Val Val His  
385 390 395 400

Lys Ser Phe Val Glu Val Asn Glu Glu Gly Thr Glu Ala Ala Ala Ala  
405 410 415

Thr Ala Ala Ile Met Met Met Arg Cys Ala Arg Phe Val Pro Arg Phe  
420 425 430

Cys Ala Asp His Pro Phe Leu Phe Phe Ile Gln His Ser Lys Thr Asn  
435 440 445

Gly Ile Leu Phe Cys Gly Arg Phe Ser Ser Pro  
450 455

<210> 1441

<211> 113

<212> PRT

<213> Homo sapiens

<400> 1441

Leu Val Glu Ala Leu Lys Leu Gln Glu Gln Leu Lys Ala Pro Val Lys  
1 5 10 15

Thr Leu Ser Glu Gly Ile Lys Arg Lys Leu Cys Phe Val Leu Ser Ile  
20 25 30

Leu Gly Asn Pro Ser Val Val Leu Leu Asp Glu Leu Phe Thr Gly Met  
35 40 45

Asp Pro Glu Gly Gln Gln Gln Met Trp Gln Ile Leu Gln Ala Thr Ile  
50 55 60

Lys Asn Gln Glu Arg Gly Ala Leu Leu Thr Thr His Tyr Met Ser Glu  
65 70 75 80

Ala Lys Ser Leu Cys Asp Arg Val Ala Ile Met Val Ser Gly Thr Leu  
85 90 95

Arg Cys Ile Gly Ser Ile Gln Gln Leu Lys Ser Leu Val Lys Ile Ile  
100 105 110

Tyr

<210> 1442

<211> 839

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (291)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (295)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (683)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1442

Ala Glu His Trp Gly Ala Ile Pro Pro Ala Gly Gly Gly Ala Val Gly  
1 5 10 15

Ile Ser Glu Thr Phe Leu Gly Lys Lys Val Arg Thr Lys Thr Leu Ser  
20 25 30

Glu Asp Asp Leu Lys Glu Ile Pro Ala Glu Gln Met Asp Phe Arg Ala  
35 40 45

Asn Leu Gln Arg Gln Val Lys Pro Lys Thr Val Ser Glu Glu Glu Arg  
50 55 60

Lys Val His Ser Pro Gln Gln Val Asp Phe Arg Ser Val Leu Ala Lys  
65 70 75 80

Lys Gly Thr Ser Lys Thr Pro Val Pro Glu Lys Val Pro Pro Pro Lys

85										90					95				
Pro	Ala	Thr	Pro	Asp	Phe	Arg	Ser	Val	Leu	Gly	Gly	Lys	Lys	Lys	Leu				
			100					105					110						
Pro	Ala	Glu	Asn	Gly	Ser	Ser	Ser	Ala	Glu	Thr	Leu	Asn	Ala	Lys	Ala				
		115					120					125							
Val	Glu	Ser	Ser	Lys	Pro	Leu	Ser	Asn	Ala	Gln	Pro	Ser	Gly	Pro	Leu				
	130					135					140								
Lys	Pro	Val	Gly	Asn	Ala	Lys	Pro	Ala	Glu	Thr	Leu	Lys	Pro	Met	Gly				
145				150					155					160					
Asn	Ala	Lys	Pro	Ala	Glu	Thr	Leu	Lys	Pro	Met	Gly	Asn	Ala	Lys	Pro				
			165					170					175						
Asp	Glu	Asn	Leu	Lys	Ser	Ala	Ser	Lys	Glu	Glu	Leu	Lys	Lys	Asp	Val				
		180						185					190						
Lys	Asn	Asp	Val	Asn	Cys	Lys	Arg	Gly	His	Ala	Gly	Thr	Thr	Asp	Asn				
	195						200					205							
Glu	Lys	Arg	Ser	Glu	Ser	Gln	Gly	Thr	Ala	Pro	Ala	Phe	Lys	Gln	Lys				
	210					215					220								
Leu	Gln	Asp	Val	His	Val	Ala	Glu	Gly	Lys	Lys	Leu	Leu	Leu	Gln	Cys				
225				230					235					240					
Gln	Val	Ser	Ser	Asp	Pro	Pro	Ala	Thr	Ile	Ile	Trp	Thr	Leu	Asn	Gly				
			245						250					255					
Lys	Thr	Leu	Lys	Thr	Thr	Lys	Phe	Ile	Ile	Leu	Ser	Gln	Glu	Gly	Ser				
		260					265						270						
Leu	Cys	Ser	Val	Ser	Ile	Glu	Lys	Ala	Leu	Pro	Glu	Asp	Arg	Gly	Leu				
		275					280					285							
Tyr	Lys	Xaa	Val	Ala	Lys	Xaa	Asp	Ala	Gly	Gln	Ala	Glu	Cys	Ser	Cys				
	290					295					300								
Gln	Val	Thr	Val	Asp	Asp	Ala	Pro	Ala	Ser	Glu	Asn	Thr	Lys	Ala	Pro				
305				310					315					320					
Glu	Met	Lys	Ser	Arg	Arg	Pro	Lys	Ser	Ser	Leu	Pro	Pro	Val	Leu	Gly				
			325					330					335						
Thr	Glu	Ser	Asp	Ala	Thr	Val	Lys	Lys	Lys	Pro	Ala	Pro	Lys	Thr	Pro				
		340					345						350						
Pro	Lys	Ala	Ala	Met	Pro	Pro	Gln	Ile	Ile	Gln	Phe	Pro	Glu	Asp	Gln				

355                      360                      365  
 Lys Val Arg Ala Gly Glu Ser Val Glu Leu Phe Gly Lys Val Thr Gly  
     370                      375                      380  
 Thr Gln Pro Ile Thr Cys Thr Trp Met Lys Phe Arg Lys Gln Ile Gln  
     385                      390                      395                      400  
 Glu Ser Glu His Met Lys Val Glu Asn Ser Glu Asn Gly Ser Lys Leu  
                     405                      410                      415  
 Thr Ile Leu Ala Ala Arg Gln Glu His Cys Gly Cys Tyr Thr Leu Leu  
                     420                      425                      430  
 Val Glu Asn Lys Leu Gly Ser Arg Gln Ala Gln Val Asn Leu Thr Val  
                     435                      440                      445  
 Val Asp Lys Pro Asp Pro Pro Ala Gly Thr Pro Cys Ala Ser Asp Ile  
                     450                      455                      460  
 Arg Ser Ser Ser Leu Thr Leu Ser Trp Tyr Gly Ser Ser Tyr Asp Gly  
     465                      470                      475                      480  
 Gly Ser Ala Val Gln Ser Tyr Ser Ile Glu Ile Trp Asp Ser Ala Asn  
                     485                      490                      495  
 Lys Thr Trp Lys Glu Leu Ala Thr Cys Arg Ser Thr Ser Phe Asn Val  
                     500                      505                      510  
 Gln Asp Leu Leu Pro Asp His Glu Tyr Lys Phe Arg Val Arg Ala Ile  
                     515                      520                      525  
 Asn Val Tyr Gly Thr Ser Glu Pro Ser Gln Glu Ser Glu Leu Thr Thr  
                     530                      535                      540  
 Val Gly Glu Lys Pro Glu Glu Pro Lys Asp Glu Val Glu Val Ser Asp  
     545                      550                      555                      560  
 Asp Asp Glu Lys Glu Pro Glu Val Asp Tyr Arg Thr Val Thr Ile Asn  
                     565                      570                      575  
 Thr Glu Gln Lys Val Ser Asp Phe Tyr Asp Ile Glu Glu Arg Leu Gly  
                     580                      585                      590  
 Ser Gly Lys Phe Gly Gln Val Phe Arg Leu Val Glu Lys Lys Thr Arg  
                     595                      600                      605  
 Lys Val Trp Ala Gly Lys Phe Phe Lys Ala Tyr Ser Ala Lys Glu Lys  
                     610                      615                      620  
 Glu Asn Ile Arg Gln Glu Ile Ser Ile Met Asn Cys Leu His His Pro



625                      630                      635                      640  
 Lys Leu Val Gln Cys Val Asp Ala Phe Glu Glu Lys Ala Asn Ile Val  
                                 645                      650                      655  
 Met Val Leu Glu Ile Val Ser Gly Gly Glu Leu Phe Glu Arg Ile Ile  
                                 660                      665                      670  
 Asp Glu Asp Phe Glu Leu Thr Glu Arg Glu Xaa Ile Lys Tyr Met Arg  
                                 675                      680                      685  
 Gln Ile Ser Glu Gly Val Glu Tyr Ile His Lys Gln Gly Ile Val His  
                                 690                      695                      700  
 Leu Asp Leu Lys Pro Glu Asn Ile Met Cys Val Asn Lys Thr Gly Thr  
 705                      710                      715                      720  
 Arg Ile Lys Leu Ile Asp Phe Gly Leu Ala Arg Arg Leu Glu Asn Ala  
                                 725                      730                      735  
 Gly Ser Leu Lys Val Leu Phe Gly Thr Pro Glu Phe Val Ala Pro Glu  
                                 740                      745                      750  
 Val Ile Asn Tyr Glu Pro Ile Gly Tyr Ala Thr Asp Met Trp Ser Ile  
                                 755                      760                      765  
 Gly Val Ile Cys Tyr Ile Leu Val Ser Gly Leu Ser Pro Phe Met Gly  
                                 770                      775                      780  
 Asp Asn Asp Asn Glu Thr Leu Ala Asn Val Thr Ser Ala Thr Trp Asp  
 785                      790                      795                      800  
 Phe Asp Asp Glu Ala Phe Asp Glu Ile Ser Asp Asp Ala Lys Asp Phe  
                                 805                      810                      815  
 Ile Ser Asn Leu Leu Lys Lys Asp Met Lys Asn Arg Leu Asp Cys Thr  
                                 820                      825                      830  
 His Ala Phe Ser Ile His Gly  
                                 835

&lt;210&gt; 1443

&lt;211&gt; 111

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1443

Cys Ser Cys Thr Val Arg Ala Arg Arg Arg Leu Asn Arg Gly Leu Arg  
 1                      5                      10                      15

Arg Lys Gln His Ser Leu Leu Lys Arg Leu Arg Lys Ala Lys Lys Glu  
20 25 30

Ala Pro Pro Met Glu Lys Pro Glu Val Val Lys Thr His Leu Arg Asp  
35 40 45

Met Ile Ile Leu Pro Glu Met Val Gly Ser Met Val Gly Val Tyr Asn  
50 55 60

Gly Lys Thr Phe Asn Gln Val Glu Ile Lys Pro Glu Met Ile Gly His  
65 70 75 80

Tyr Leu Gly Glu Phe Ser Ile Thr Tyr Lys Pro Val Lys His Gly Arg  
85 90 95

Pro Gly Ile Gly Ala Thr His Ser Ser Arg Phe Ile Pro Leu Lys  
100 105 110

<210> 1444

<211> 531

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (446)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (474)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (502)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (504)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1444

Glu Lys Ser Val Gln Xaa Ser Lys Arg Glu Ser Val Ser His Arg Ser  
1 5 10 15

Pro Ser Pro Glu Pro Ile Tyr Asn Ser Glu Gly Lys Arg Leu Asn Thr  
20 25 30

Arg Glu Phe Arg Thr Arg Lys Lys Leu Glu Glu Glu Arg His Asn Leu  
35 40 45

Ile Thr Glu Met Val Ala Leu Asn Pro Asp Phe Lys Pro Pro Ala Asp  
50 55 60

Tyr Lys Pro Pro Ala Thr Arg Val Ser Asp Lys Val Met Ile Pro Gln  
65 70 75 80

Asp Glu Tyr Pro Glu Ile Asn Phe Val Gly Leu Leu Ile Gly Pro Arg  
85 90 95

Gly Asn Thr Leu Lys Asn Ile Glu Lys Glu Cys Asn Ala Lys Ile Met  
100 105 110

Ile Arg Gly Lys Gly Ser Val Lys Glu Gly Lys Val Gly Arg Lys Asp  
115 120 125

Gly Gln Met Leu Pro Gly Glu Asp Glu Pro Leu His Ala Leu Val Thr  
130 135 140

Ala Asn Thr Met Glu Asn Val Lys Lys Ala Val Glu Gln Ile Arg Asn  
145 150 155 160

Ile Leu Lys Gln Gly Ile Glu Thr Pro Glu Asp Gln Asn Asp Leu Arg  
165 170 175

Lys Met Gln Leu Arg Glu Leu Ala Arg Leu Asn Gly Thr Leu Arg Glu  
180 185 190

Asp Asp Asn Arg Ile Leu Arg Pro Trp Gln Ser Ser Glu Thr Arg Ser  
195 200 205

Ile Thr Asn Thr Thr Val Cys Thr Lys Cys Gly Gly Ala Gly His Ile  
210 215 220

Ala Ser Asp Cys Lys Phe Gln Arg Pro Gly Asp Pro Gln Ser Ala Gln  
225 230 235 240

Asp Lys Ala Arg Met Asp Lys Glu Tyr Leu Ser Leu Met Ala Glu Leu  
245 250 255

Gly Glu Ala Pro Val Pro Ala Ser Val Gly Ser Thr Ser Gly Pro Ala  
260 265 270

Thr Thr Pro Leu Ala Ser Ala Pro Arg Pro Ala Ala Pro Ala Asn Asn  
 275 280 285

Pro Pro Pro Pro Ser Leu Met Ser Thr Thr Gln Ser Arg Pro Pro Trp  
 290 295 300

Met Asn Ser Gly Pro Ser Glu Ser Arg Pro Tyr His Gly Met His Gly  
 305 310 315 320

Gly Gly Pro Gly Gly Pro Gly Gly Gly Pro His Ser Phe Pro His Pro  
 325 330 335

Leu Pro Ser Leu Thr Gly Gly His Gly Gly His Pro Met Gln His Asn  
 340 345 350

Pro Asn Gly Pro Pro Pro Pro Trp Met Gln Pro Pro Pro Pro Pro Met  
 355 360 365

Asn Gln Gly Pro His Pro Pro Gly His His Gly Pro Pro Pro Met Asp  
 370 375 380

Gln Tyr Leu Gly Ser Thr Pro Val Gly Ser Gly Val Tyr Arg Leu His  
 385 390 395 400

Gln Gly Lys Gly Met Met Pro Pro Pro Pro Met Gly Met Met Pro Pro  
 405 410 415

Pro Pro Pro Pro Pro Ser Gly Gln Pro Pro Pro Pro Pro Ser Gly Pro  
 420 425 430

Leu Pro Pro Trp Gln Gln Gln Gln Gln Gln Pro Pro Pro Xaa Pro Pro  
 435 440 445

Pro Ser Ser Ser Met Ala Ser Ser Thr Pro Leu Pro Trp Gln Gln Asn  
 450 455 460

Thr Thr Thr Thr Thr Thr Ser Ala Gly Xaa Gly Ser Ile Pro Pro Trp  
 465 470 475 480

Gln Gln Gln Gln Ala Ala Ala Ala Ala Ser Pro Gly Ala Pro Gln Met  
 485 490 495

Gln Gly Asn Pro Thr Xaa Gly Xaa Met Ala Leu Leu Gln Trp Ile Ser  
 500 505 510

Thr Trp Glu Val Arg Leu Trp Ala Leu Gly Ser Ile Ala Cys Ile Lys  
 515 520 525

Glu Lys Val  
 530

&lt;210&gt; 1445

&lt;211&gt; 99

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1445

Ser Thr Cys Arg Val Val Glu Val Gly Lys Gln Gln Gly Thr Leu Tyr  
1 5 10 15  
Asn Ala Arg Gln Leu Gln Tyr Gly Lys Asn Gly Pro Gly Pro Trp Asp  
20 25 30  
Lys Ile Arg Val Val Leu Thr Pro Arg Gly Arg Gly Gln Pro Ala Phe  
35 40 45  
Arg Val Ala Ser Ser Val Pro Leu Gln Ser Asp Cys Val His Leu Val  
50 55 60  
Gln Leu Met Ser Glu Ser Pro Ala Leu Gly Tyr Phe Ile Leu Val Arg  
65 70 75 80  
Thr Leu Thr Ser His Ile Gly Ser Ile Asn Ser Phe Gly Lys Glu Leu  
85 90 95  
Ile Ser Phe

&lt;210&gt; 1446

&lt;211&gt; 65

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1446

Gln Pro Pro Gln Thr Phe Trp Gln Ala Leu Gln Leu Cys Tyr Phe Ile  
1 5 10 15  
Gln Leu Ile Leu Gln Ile Glu Ser Asn Gly His Ser Val Ser Phe Gly  
20 25 30  
Arg Met Asp Gln Tyr Leu Tyr Pro Tyr Tyr Arg Arg Asp Val Glu Leu  
35 40 45  
Asn Gln Thr Leu Asp Arg Glu His Ala Ile Glu Met Cys Ile Ala Ala  
50 55 60  
Gly

65

&lt;210&gt; 1447

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (116)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1447

Tyr Cys Ser Ala Ala Met Ala Glu Pro Gln Pro Pro Ser Gly Gly Leu  
1 5 10 15

Thr Asp Glu Ala Ala Leu Ser Cys Cys Ser Asp Ala Asp Pro Ser Thr  
20 25 30

Lys Asp Phe Leu Leu Gln Gln Thr Met Leu Arg Val Lys Asp Pro Lys  
35 40 45

Lys Ser Leu Asp Phe Tyr Thr Arg Val Leu Gly Met Thr Leu Ile Gln  
50 55 60

Lys Cys Asp Phe Pro Ile Met Lys Phe Ser Leu Tyr Phe Leu Ala Tyr  
65 70 75 80

Glu Asp Lys Asn Asp Ile Pro Lys Glu Lys Asp Glu Lys Ile Ala Trp  
85 90 95

Ala Leu Ser Arg Lys Ala Thr Leu Glu Leu Thr His Asn Trp Gly Thr  
100 105 110

Glu Asp Asp Xaa Thr Gln Ser Tyr His Asn Gly Asn Ser Asp Pro Arg  
115 120 125

Gly Phe Gly His Ile Gly Ile Ala Val Pro Asp Val Tyr Ser Ala Cys  
130 135 140

Lys Arg Phe Glu Glu Leu Gly Val Lys Phe Val Lys Lys Pro Asp Asp  
145 150 155 160

Gly Lys Met Lys Gly Leu Ala Phe Ile Gln Asp Pro Asp Gly Tyr Trp  
165 170 175

Ile Glu Ile Leu Asn Pro Asn Lys Met Ala Thr Leu Met  
180 185

&lt;210&gt; 1448

&lt;211&gt; 219

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1448

Phe Glu Glu Arg Tyr Thr Phe Glu Ile Pro Phe Leu Glu Ala Gln Arg  
1 5 10 15

Arg Thr Leu Leu Leu Thr Val Val Asp Phe Asp Lys Phe Ser Arg His  
20 25 30

Cys Val Ile Gly Lys Val Ser Val Pro Leu Cys Glu Val Asp Leu Val  
35 40 45

Lys Gly Gly His Trp Trp Lys Ala Leu Ile Pro Ser Ser Gln Asn Glu  
50 55 60

Val Glu Leu Gly Glu Leu Leu Leu Ser Leu Asn Tyr Leu Pro Ser Ala  
65 70 75 80

Gly Arg Leu Asn Val Asp Val Ile Arg Ala Lys Gln Leu Leu Gln Thr  
85 90 95

Asp Val Ser Gln Gly Ser Asp Pro Phe Val Lys Ile Gln Leu Val His  
100 105 110

Gly Leu Lys Leu Val Lys Thr Lys Lys Thr Ser Phe Leu Arg Gly Thr  
115 120 125

Ile Asp Pro Phe Tyr Asn Glu Ser Phe Ser Phe Lys Val Pro Gln Glu  
130 135 140

Glu Leu Glu Asn Ala Ser Leu Val Phe Thr Val Phe Gly His Asn Met  
145 150 155 160

Lys Ser Ser Asn Asp Phe Ile Gly Arg Ile Val Ile Gly Gln Tyr Ser  
165 170 175

Ser Gly Pro Ser Glu Thr Asn His Trp Arg Arg Met Leu Asn Thr His  
180 185 190

Arg Thr Ala Val Glu Gln Trp His Ser Leu Arg Ser Arg Ala Glu Cys  
195 200 205

Asp Arg Val Ser Pro Ala Ser Leu Glu Val Thr  
210 215

<210> 1449  
<211> 44  
<212> PRT  
<213> Homo sapiens

<400> 1449  
Asp Trp Val Phe Lys Leu Ala Phe Val Asn Leu Ile Ala Leu Arg Leu  
1 5 10 15  
Pro Ser Asn Glu Lys Lys Ser Gln Asn Phe Tyr Leu Val Phe Val His  
20 25 30  
Phe Leu Leu Lys Cys Asn His Met Ile Leu Val Cys  
35 40

<210> 1450  
<211> 272  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (183)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1450  
Ser Thr Pro Cys Trp Pro Leu Pro Pro Val Trp Leu Gly Cys Gly Glu  
1 5 10 15  
Met Cys Leu Cys Val Gln Val Pro Glu Arg Asp Ser Val Ser Ser Val  
20 25 30  
Ser Ser Ala Thr Ser Ser Ser Ser Ser Ala His Ser Val Asp Ser Glu  
35 40 45  
Asp Met Tyr Ala Asp Leu Ala Ser Pro Val Ser Ser Ala Ser Ser Arg  
50 55 60  
Ser Pro Ala Pro Ala Gln Thr Arg Lys Glu Lys Gly Lys Ser Lys Lys  
65 70 75 80  
Glu Asp Gly Val Lys Glu Glu Lys Arg Lys Arg Asp Ser Ser Thr Gln  
85 90 95  
Pro Pro Lys Ser Ala Lys Pro Pro Ala Gly Gly Lys Ser Ser Gln Gln  
100 105 110  
Pro Ser Thr Pro Gln Gln Ala Pro Pro Gly Gln Pro Gln Gln Gly Thr



115 120 125  
Phe Val Ala His Lys Glu Ile Lys Leu Thr Leu Leu Asn Lys Ala Ala  
130 135 140  
Asp Lys Gly Ser Arg Lys Arg Tyr Glu Pro Ser Asp Lys Asp Arg Gln  
145 150 155 160  
Ser Pro Pro Pro Ala Lys Arg Pro Asn Thr Ser Pro Asp Arg Gly Ser  
165 170 175  
Arg Asp Arg Lys Ser Gly Xaa Arg Leu Gly Ser Pro Lys Pro Glu Arg  
180 185 190  
Gln Arg Gly Gln Asn Ser Lys Ala Pro Ala Ala Pro Ala Asp Arg Lys  
195 200 205  
Arg Gln Leu Ser Pro Gln Ser Lys Ser Ser Ser Lys Val Thr Ser Val  
210 215 220  
Pro Gly Lys Ala Ser Asp Pro Gly Ala Ala Ser Thr Lys Ser Gly Lys  
225 230 235 240  
Ala Ser Thr Leu Ser Arg Arg Glu Glu Leu Leu Lys Gln Leu Lys Ala  
245 250 255  
Val Glu Asp Ala Ile Ala Arg Lys Arg Ala Lys Ile Pro Gly Lys Ala  
260 265 270

<210> 1451

<211> 164

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (122)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (144)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

&lt;222&gt; (150)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1451

Val Met Ala Ala Cys Arg Tyr Cys Cys Ser Cys Leu Arg Leu Arg Pro  
1 5 10 15

Leu Ser Asp Gly Pro Phe Leu Leu Pro Arg Arg Asp Arg Ala Leu Thr  
20 25 30

Gln Leu Gln Val Arg Ala Leu Trp Ser Ser Ala Gly Ser Arg Ala Val  
35 40 45

Ala Val Asp Leu Gly Asn Arg Lys Leu Glu Ile Ser Ser Gly Lys Leu  
50 55 60

Ala Arg Phe Ala Asp Gly Ser Ala Val Val Gln Ser Gly Asp Thr Ala  
65 70 75 80

Val Met Val Thr Ala Val Ser Lys Thr Lys Pro Ser Pro Ser Gln Phe  
85 90 95

Met Pro Leu Val Val Asp Tyr Arg Gln Lys Ala Ala Ala Ala Gly Arg  
100 105 110

Ile Pro Thr Asn Tyr Leu Arg Arg Glu Xaa Gly Thr Ser Asp Lys Glu  
115 120 125

Ile Leu Thr Ser Arg Ile Ile Asp Arg Ser Ile Arg Pro Leu Phe Xaa  
130 135 140

Ala Gly Tyr Phe Tyr Xaa Thr Gln Val Leu Cys Asn Leu Leu Ala Val  
145 150 155 160

Asp Gly Val Asn

&lt;210&gt; 1452

&lt;211&gt; 206

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1452

Ala Asp Cys Val Phe Val Glu Asp Val Ala Val Val Cys Glu Glu Thr  
1 5 10 15

Ala Leu Ile Thr Arg Pro Gly Ala Pro Ser Arg Arg Lys Glu Val Asp  
20 25 30

Met Met Lys Glu Ala Leu Glu Lys Leu Gln Leu Asn Ile Val Glu Met  
35 40 45

Lys Asp Glu Asn Ala Thr Leu Asp Gly Gly Asp Val Leu Phe Thr Gly  
50 55 60

Arg Glu Phe Phe Val Gly Leu Ser Lys Arg Thr Asn Gln Arg Gly Ala  
65 70 75 80

Glu Ile Leu Ala Asp Thr Phe Lys Asp Tyr Ala Val Ser Thr Val Pro  
85 90 95

Val Ala Asp Gly Leu His Leu Lys Ser Phe Cys Ser Met Ala Gly Pro  
100 105 110

Asn Leu Ile Ala Ile Gly Ser Ser Glu Ser Ala Gln Lys Ala Leu Lys  
115 120 125

Ile Met Gln Gln Met Ser Asp His Arg Tyr Asp Lys Leu Thr Val Pro  
130 135 140

Asp Asp Ile Ala Ala Asn Cys Ile Tyr Leu Asn Ile Pro Asn Lys Gly  
145 150 155 160

His Val Leu Leu His Arg Thr Pro Glu Glu Tyr Pro Glu Ser Ala Lys  
165 170 175

Val Tyr Glu Lys Leu Lys Asp His Met Leu Ile Pro Val Ser Met Ser  
180 185 190

Glu Leu Glu Lys Val Asp Gly Leu Leu Thr Cys Cys Gln Phe  
195 200 205

<210> 1453

<211> 645

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (608)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1453

Ala His Ala Ser Gly Lys Lys Pro Pro Asn Arg Pro Gly Ile Thr Phe  
1 5 10 15

Glu Ile Gly Ala Arg Leu Glu Ala Leu Asp Tyr Leu Gln Lys Trp Tyr  
20 25 30

Pro Ser Arg Ile Glu Lys Ile Asp Tyr Glu Glu Gly Lys Met Leu Val  
 35 40 45  
 His Phe Glu Arg Trp Ser His Arg Tyr Asp Glu Trp Ile Tyr Trp Asp  
 50 55 60  
 Ser Asn Arg Leu Arg Pro Leu Glu Arg Pro Ala Leu Arg Lys Glu Gly  
 65 70 75 80  
 Leu Lys Asp Glu Glu Asp Phe Phe Asp Phe Lys Ala Gly Glu Glu Val  
 85 90 95  
 Leu Ala Arg Trp Thr Asp Cys Arg Tyr Tyr Pro Ala Lys Ile Glu Ala  
 100 105 110  
 Ile Asn Lys Glu Gly Thr Phe Thr Val Gln Phe Tyr Asp Gly Val Ile  
 115 120 125  
 Arg Cys Leu Lys Arg Met His Ile Lys Ala Met Pro Glu Asp Ala Lys  
 130 135 140  
 Gly Gln Asp Trp Ile Ala Leu Val Lys Ala Ala Ala Ala Ala Ala Ala  
 145 150 155 160  
 Lys Asn Lys Thr Gly Ser Lys Pro Arg Thr Ser Ala Asn Ser Asn Lys  
 165 170 175  
 Asp Lys Asp Lys Asp Glu Arg Lys Trp Phe Lys Val Pro Ser Lys Lys  
 180 185 190  
 Glu Glu Thr Ser Thr Cys Ile Ala Thr Pro Asp Val Glu Lys Lys Glu  
 195 200 205  
 Asp Leu Pro Thr Ser Ser Glu Thr Phe Gly Leu His Val Glu Asn Val  
 210 215 220  
 Pro Lys Met Val Phe Pro Gln Pro Glu Ser Thr Leu Ser Asn Lys Arg  
 225 230 235 240  
 Lys Asn Asn Gln Gly Asn Ser Phe Gln Ala Lys Arg Ala Arg Leu Asn  
 245 250 255  
 Lys Ile Thr Gly Leu Leu Ala Ser Lys Ala Val Gly Val Asp Gly Ala  
 260 265 270  
 Glu Lys Lys Glu Asp Tyr Asn Glu Thr Ala Pro Met Leu Glu Gln Ala  
 275 280 285  
 Ile Ser Pro Lys Pro Gln Ser Gln Lys Lys Asn Glu Ala Asp Ile Ser  
 290 295 300

Ser Ser Ala Asn Thr Gln Lys Pro Ala Leu Leu Ser Ser Thr Leu Ser  
305 310 315 320

Ser Gly Lys Ala Arg Ser Lys Lys Cys Lys His Glu Ser Gly Asp Ser  
325 330 335

Ser Gly Cys Ile Lys Pro Pro Lys Ser Pro Leu Ser Pro Glu Leu Ile  
340 345 350

Gln Val Glu Asp Leu Thr Leu Val Ser Gln Leu Ser Ser Ser Val Ile  
355 360 365

Asn Lys Thr Ser Pro Pro Gln Pro Val Asn Pro Pro Arg Pro Phe Lys  
370 375 380

His Ser Glu Arg Arg Arg Arg Ser Gln Arg Leu Ala Thr Leu Pro Met  
385 390 395 400

Pro Asp Asp Ser Val Glu Lys Val Ser Ser Pro Ser Pro Ala Thr Asp  
405 410 415

Gly Lys Val Phe Ser Ile Ser Ser Gln Asn Gln Gln Glu Ser Ser Val  
420 425 430

Pro Glu Val Pro Asp Val Ala His Leu Pro Leu Glu Lys Leu Gly Pro  
435 440 445

Cys Leu Pro Leu Asp Leu Ser Arg Gly Ser Glu Val Thr Ala Pro Val  
450 455 460

Ala Ser Asp Ser Ser Tyr Arg Asn Glu Cys Pro Arg Ala Glu Lys Glu  
465 470 475 480

Asp Thr Gln Met Leu Pro Asn Pro Ser Ser Lys Ala Ile Ala Asp Gly  
485 490 495

Arg Gly Ala Pro Ala Ala Ala Gly Ile Ser Lys Thr Glu Lys Lys Val  
500 505 510

Lys Leu Glu Asp Lys Ser Ser Thr Ala Phe Gly Lys Arg Lys Glu Lys  
515 520 525

Asp Lys Glu Arg Arg Glu Lys Arg Asp Lys Asp His Tyr Arg Pro Lys  
530 535 540

Gln Lys Lys Lys Lys Lys Lys Lys Lys Lys Ser Lys Gln His Asp Tyr  
545 550 555 560

Ser Asp Tyr Glu Asp Ser Ser Leu Glu Phe Leu Glu Arg Cys Ser Ser  
565 570 575

Pro Leu Thr Arg Ser Ser Gly Ser Ser Leu Ala Ser Arg Ser Met Phe  
580 585 590

Thr Glu Lys Thr Thr Thr Tyr Gln Tyr Pro Arg Ala Ile Leu Ser Xaa  
595 600 605

Asp Leu Ser Gly Glu Ser Met Cys Asn His Val Met Val Lys Thr Arg  
610 615 620

Leu Thr Ile Pro Lys Cys Val Thr Glu Asn Lys Thr Tyr Ser Val Lys  
625 630 635 640

Ser Met Arg Phe Lys  
645

<210> 1454

<211> 69

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1454

Leu Val Ile Tyr Ser Trp His Xaa Phe Phe Ser Phe Gly Phe Ala Trp  
1 5 10 15

Leu Phe Leu Gln Val Leu Ser Arg Tyr His Ser Ala Asn His Cys Tyr  
20 25 30

Arg Met Val Thr Ser Phe Val Leu Thr Val Gln Gln Gln Ile Trp Val  
35 40 45

Arg Leu Asn Leu Ser Val Asn Phe Phe Phe Trp Cys Phe Phe Gly Leu  
50 55 60

Met Thr Val Ser Leu  
65

<210> 1455

<211> 230

<212> PRT

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (150)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (152)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1455

Leu Ala Gly Pro Arg Arg Trp Arg Val Ser Arg Pro Glu Ala Tyr Arg  
1 5 10 15

Ser Arg Trp Arg Gly Arg Ala Gly Gln Gly Phe Gly Leu Arg Arg Arg  
20 25 30

Glu Met Ala Ala Gly Gly Arg Met Glu Asp Gly Ser Leu Asp Ile Thr  
35 40 45

Gln Ser Ile Glu Asp Asp Pro Leu Leu Asp Ala Gln Leu Leu Pro His  
50 55 60

His Ser Leu Gln Ala His Phe Arg Pro Arg Phe His Pro Leu Pro Thr  
65 70 75 80

Val Ile Ile Val Asn Leu Leu Trp Phe Ile His Leu Val Phe Val Val  
85 90 95

Leu Ala Phe Leu Thr Gly Val Leu Cys Ser Tyr Pro Asn Pro Asn Glu  
100 105 110

Asp Lys Cys Pro Gly Asn Tyr Thr Asn Pro Leu Lys Val Gln Thr Val  
115 120 125

Ile Ile Leu Gly Lys Val Ile Leu Trp Ile Leu His Leu Leu Leu Glu  
130 135 140

Cys Tyr Ile Gln Tyr Xaa His Xaa Lys Ile Arg Asn Arg Gly Tyr Asn  
145 150 155 160

Leu Ile Tyr Arg Ser Thr Arg His Leu Lys Arg Leu Ala Leu Met Ile  
165 170 175

Gln Ser Ser Gly Asn Thr Val Leu Leu Leu Ile Leu Cys Met Gln His  
180 185 190

Ser Phe Pro Glu Pro Gly Arg Leu Tyr Leu Asp Leu Ile Leu Ala Ile  
195 200 205

Leu Ala Leu Glu Leu Ile Cys Ser Leu Ile Cys Leu Leu Ile Tyr Thr

210

215

220

Val Lys Ile Pro Glu Ile  
225 230

&lt;210&gt; 1456

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (10)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1456

Phe Phe Phe Phe Phe Ser Ile Ile Phe Xaa Gln Lys Gly Lys Lys Pro  
1 5 10 15

Phe Lys Ser Leu Arg Asn Leu Lys Ile Asp Leu Asp Leu Thr Ala Glu  
20 25 30

Gly Asp Leu Asn Ile Ile Met Ala Leu Ala Glu Lys Ile Lys Pro Gly  
35 40 45

Leu His Ser Phe Ile Phe Gly Arg Pro Phe Tyr Thr Ser Val Gln Glu  
50 55 60

Arg Asp Val Leu Met Thr Phe  
65 70

&lt;210&gt; 1457

&lt;211&gt; 51

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1457

Glu Tyr Asn Ser Val Asn Ala Asn Met Ile Ala Thr Leu Phe Thr Ser  
1 5 10 15

Leu Leu Leu Arg Pro Pro Pro Asn Leu Met Ala Arg Gln Thr Pro Ser  
20 25 30

Asp Arg Gln Arg Ala Ile Gln Phe Leu Leu Gly Phe Leu Leu Gly Ser  
35 40 45

Glu Glu Asp



50

<210> 1458  
<211> 260  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (4)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (84)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1458  
Pro Arg Leu Xaa Gly Asp Phe Val Ile Arg Pro Pro Gly Ser Gly Glu  
1 5 10 15

Lys Glu Pro His Pro Phe Ser Leu Cys His His Phe Gly His Pro Ala  
20 25 30

Gly Leu Val Leu Gly Phe Ala Leu Thr Ser Arg Lys Asp Ala Asn Pro  
35 40 45

Ser Leu Thr Pro Ala Arg Ala Ala Thr Cys Leu Cys Arg Gly Asp Pro  
50 55 60

Ser Leu Met Thr Leu Arg Cys Leu Glu Pro Ser Gly Asn Gly Gly Glu  
65 70 75 80

Gly Thr Arg Xaa Gln Trp Gly Thr Ala Gly Ser Ala Glu Glu Pro Ser  
85 90 95

Pro Gln Ala Ala Arg Leu Ala Lys Ala Leu Arg Glu Leu Gly Gln Thr  
100 105 110

Gly Trp Tyr Trp Gly Ser Met Thr Val Asn Glu Ala Lys Glu Lys Leu  
115 120 125

Lys Glu Ala Pro Glu Gly Thr Phe Leu Ile Arg Asp Ser Ser His Ser  
130 135 140

Asp Tyr Leu Leu Thr Ile Ser Val Lys Thr Ser Ala Gly Pro Thr Asn  
145 150 155 160

Leu Arg Ile Glu Tyr Gln Asp Gly Lys Phe Arg Leu Asp Ser Ile Ile

Asp Leu Lys Ala Ala Arg Ser Ile Pro Ala Gly Ala Glu Pro Gly Glu  
85 90 95

Lys Gly Ser Ala Arg Lys Ala Gly Pro Ala Lys Glu Gln Glu Pro Met  
100 105 110

Pro Thr Val Asp Ser His Glu Pro Arg Leu Gly Pro Arg Pro Arg Ser  
115 120 125

His Asn Lys Val Leu Asn Pro Pro Gly Gly Lys Ser Ser Ile Ser Phe  
130 135 140

Tyr  
145

<210> 1460

<211> 113

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1460

Pro Ser Ile Tyr Asp Ile Leu Leu Leu Ile Ile Leu Trp Leu Xaa Ser  
1 5 10 15

Arg Met Asp Val Glu Ser Cys Ser Gln Arg Glu Asp Arg Leu Lys Arg  
20 25 30

Ala Xaa Ser Ala Lys Ser Ala Asn Ala Cys Asn Asn Cys Lys Cys Ser  
35 40 45

Val Ala Thr Cys Arg Leu Asn Ser Ala Gly Pro Glu Phe Cys Ile Arg  
50 55 60

Gly Leu Gly Tyr Ser Pro Asp Lys Gly Trp Arg His Arg Met Leu Glu  
65 70 75 80

Phe Ser Gly His Ser Gly Lys Gly Pro Leu Cys Arg Ala Val Thr Val  
85 90 95

Ser Cys Pro Ile Gly Pro Phe Pro Pro Val Lys Cys Lys Ser Gln Glu  
100 105 110

Ser

&lt;210&gt; 1461

&lt;211&gt; 268

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1461

Thr Thr Phe Arg Ala Lys Pro Gly Cys Cys Cys Ser Gly Gly Glu Asp  
1 5 10 15

Arg Gly Thr Ala Met Ala Glu Ser Ser Glu Ser Phe Thr Met Ala Ser  
20 25 30

Ser Pro Ala Gln Arg Arg Arg Gly Asn Asp Pro Leu Thr Ser Ser Pro  
35 40 45

Gly Arg Ser Ser Arg Arg Thr Asp Ala Leu Thr Ser Ser Pro Gly Arg  
50 55 60

Asp Leu Pro Pro Phe Glu Asp Glu Ser Glu Gly Leu Leu Gly Thr Glu  
65 70 75 80

Gly Pro Leu Glu Glu Glu Glu Asp Gly Glu Glu Leu Ile Gly Asp Gly  
85 90 95

Met Glu Arg Asp Tyr Arg Ala Ile Pro Glu Leu Asp Ala Tyr Glu Ala  
100 105 110

Glu Gly Leu Ala Leu Asp Asp Glu Asp Val Glu Glu Leu Thr Ala Ser  
115 120 125

Gln Arg Glu Ala Ala Glu Arg Ala Met Arg His Val Thr Gly Arg Leu  
130 135 140

Ala Gly Ala Trp Ala Ala Cys Ala Val Gly Ser Cys Met Thr Ala Met  
145 150 155 160

Arg Arg Thr Arg Ser Ala Leu Pro Ala Ser Ala Ala Ser Gly Ala Ala  
165 170 175

Thr Glu Asp Gly Glu Glu Asp Glu Glu Met Ile Glu Ser Ile Glu Asn  
180 185 190

Leu Glu Asp Leu Lys Gly His Ser Val Arg Glu Trp Val Ser Met Ala  
195 200 205

Gly Pro Arg Leu Glu Ile His His Arg Phe Lys Asn Phe Leu Arg Thr

210

215

220

His Val Asp Ser His Gly His Asn Val Phe Lys Glu Arg Ile Ser Asp  
 225 230 235 240

Met Cys Lys Glu Asn Arg Glu Ser Leu Val Val Asn Tyr Glu Asp Thr  
 245 250 255

Gly Ser Gln Gly Ala Arg Ala Gly Leu Leu Pro Ala  
 260 265

&lt;210&gt; 1462

&lt;211&gt; 393

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (149)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1462

Lys Ile Arg Lys Gln Ile Asn Ile Asn Asn Pro Phe Val Phe Lys His  
 1 5 10 15

Ile Ser Asn Leu Lys Ser Met Asp His Phe Asp Asp Ile Gly Pro Ser  
 20 25 30

Val Val Met Ala Ser Pro Gly Met Met Gln Ser Gly Leu Ser Arg Glu  
 35 40 45

Leu Phe Glu Ser Trp Cys Thr Asp Lys Arg Asn Gly Val Ile Ile Ala  
 50 55 60

Gly Tyr Cys Val Glu Gly Thr Leu Ala Lys His Ile Met Ser Glu Pro  
 65 70 75 80

Glu Glu Ile Thr Thr Met Ser Gly Gln Lys Leu Pro Leu Lys Met Ser  
 85 90 95

Val Asp Tyr Ile Ser Phe Ser Ala His Thr Asp Tyr Gln Gln Thr Ser  
 100 105 110

Glu Phe Ile Arg Ala Leu Lys Pro Pro His Val Ile Leu Val His Gly  
 115 120 125

Glu Gln Asn Glu Met Ala Arg Leu Lys Ala Ala Leu Ile Arg Glu Tyr  
 130 135 140

Glu Asp Asn Asp Xaa Val His Ile Glu Val His Asn Pro Arg Asn Thr  
145 150 155 160

Glu Ala Val Thr Leu Asn Phe Arg Gly Glu Lys Leu Ala Lys Val Met  
165 170 175

Gly Phe Leu Ala Asp Lys Lys Pro Glu Gln Gly Gln Arg Val Ser Gly  
180 185 190

Ile Leu Val Lys Arg Asn Phe Asn Tyr His Ile Leu Ser Pro Cys Asp  
195 200 205

Leu Ser Asn Tyr Thr Asp Leu Ala Met Ser Thr Val Lys Gln Thr Gln  
210 215 220

Ala Ile Pro Tyr Thr Gly Pro Phe Asn Leu Leu Cys Tyr Gln Leu Gln  
225 230 235 240

Lys Leu Thr Gly Asp Val Glu Glu Leu Glu Ile Gln Glu Lys Pro Ala  
245 250 255

Leu Lys Val Phe Lys Asn Ile Thr Val Ile Gln Glu Pro Gly Met Val  
260 265 270

Val Leu Glu Trp Leu Ala Asn Pro Ser Asn Asp Met Tyr Ala Asp Thr  
275 280 285

Val Thr Thr Val Ile Leu Glu Val Gln Ser Asn Pro Lys Ile Arg Lys  
290 295 300

Gly Ala Val Gln Lys Val Ser Lys Lys Leu Glu Met His Val Tyr Ser  
305 310 315 320

Lys Arg Leu Glu Ile Met Leu Gln Asp Ile Phe Gly Glu Asp Cys Val  
325 330 335

Ser Val Lys Asp Asp Ser Ile Leu Ser Val Thr Val Asp Gly Lys Thr  
340 345 350

Ala Asn Leu Asn Leu Glu Thr Arg Thr Val Glu Cys Glu Glu Gly Ser  
355 360 365

Glu Asp Asp Glu Ser Leu Arg Glu Met Val Glu Leu Ala Ala Gln Arg  
370 375 380

Leu Tyr Glu Ala Leu Thr Pro Val His  
385 390

&lt;210&gt; 1463

&lt;211&gt; 163

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1463

Leu Leu Asp Phe Pro Ala Leu Pro Lys Phe Val Leu Ala Gln Ser Pro  
1 5 10 15

Lys Ala Gly Lys Pro Ser Thr Met Thr Ser Met Thr Gln Ser Leu Arg  
20 25 30

Glu Val Ile Lys Ala Met Thr Lys Ala Arg Asn Phe Glu Arg Val Leu  
35 40 45

Gly Lys Ile Thr Leu Val Ser Ala Ala Pro Gly Lys Val Ile Cys Glu  
50 55 60

Met Lys Val Glu Glu Glu His Thr Asn Ala Ile Gly Thr Leu His Gly  
65 70 75 80

Gly Leu Thr Ala Thr Leu Val Asp Asn Ile Ser Thr Met Ala Leu Leu  
85 90 95

Cys Thr Glu Arg Gly Ala Pro Gly Val Ser Val Asp Met Asn Ile Thr  
100 105 110

Tyr Met Ser Pro Ala Lys Leu Gly Glu Asp Ile Val Ile Thr Ala His  
115 120 125

Val Leu Lys Gln Gly Lys Thr Leu Ala Phe Thr Ser Val Asp Leu Thr  
130 135 140

Asn Lys Ala Thr Gly Lys Leu Ile Ala Gln Gly Arg His Thr Lys His  
145 150 155 160

Leu Gly Asn

&lt;210&gt; 1464

&lt;211&gt; 94

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1464

Trp Cys Cys Phe Arg Thr Val Phe Ser Tyr Pro Phe Arg Leu Val Phe  
1 5 10 15

Cys Met Arg His His Cys Lys Lys Ile Leu Ser Leu Gln Lys Tyr Phe  
20 25 30

Ile Thr Lys Glu Gln Lys Gln Lys Lys Leu Lys Leu His Trp Leu Lys  
 35 40 45

Tyr Ser Phe Gln Gln Leu Ser Phe Leu Ser Thr Leu Met Ala Thr Pro  
 50 55 60

Pro Arg Val Glu Val Thr Val Val Cys Thr Gln Val Val Pro Ile Lys  
 65 70 75 80

Thr Pro Ser Phe Glu Pro Asn Tyr Val His Phe Val Ile Asp  
 85 90

<210> 1465

<211> 183

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1465

Gln Val Glu Ile His Tyr Xaa Phe Asp Thr Leu Ile Glu Trp Trp Arg  
 1 5 10 15

Glu Lys Asn Gly Ser Xaa Cys Ser Xaa Leu Ile Ile Val Leu Asp Ser  
 20 25 30

Glu Asn Ser Thr Pro Trp Val Lys Glu Val Arg Lys Ile Asn Asp Gln  
 35 40 45

Tyr Ile Ala Val Gln Gly Ala Glu Leu Ile Lys Thr Val Asp Ile Glu  
 50 55 60

Glu Ala Asp Pro Pro Gln Leu Gly Asp Phe Thr Lys Asp Trp Val Glu  
 65 70 75 80



Tyr Asn Cys Asn Ser Ser Asn Asn Ile Cys Trp Thr Glu Lys Gly Arg  
85 90 95

Thr Val Lys Ala Val Tyr Gly Val Ser Lys Arg Trp Ser Asp Tyr Thr  
100 105 110

Leu His Leu Pro Thr Gly Ser Asp Val Ala Lys His Trp Met Leu His  
115 120 125

Phe Pro Arg Ile Thr Tyr Pro Leu Val His Leu Ala Asn Trp Leu Cys  
130 135 140

Gly Leu Asn Leu Phe Trp Ile Cys Lys Thr Cys Phe Arg Cys Leu Lys  
145 150 155 160

Arg Leu Lys Met Ser Trp Phe Leu Pro Thr Val Leu Asp Thr Gly Gln  
165 170 175

Gly Phe Lys Leu Val Lys Ser  
180

<210> 1466

<211> 146

<212> PRT

<213> Homo sapiens

<400> 1466

Arg Asp Gly Val Trp Ser Val Gln Val Arg Gly Gln Gly Glu Val Glu  
1 5 10 15

Asn Gly Arg Cys Ile Thr Lys Leu Glu Asn Met Gly Phe Arg Val Gly  
20 25 30

Gln Gly Leu Ile Glu Arg Phe Thr Lys Asp Thr Ala Arg Phe Lys Asp  
35 40 45

Glu Leu Asp Ile Met Lys Phe Ile Cys Lys Asp Phe Trp Thr Thr Val  
50 55 60

Phe Lys Lys Gln Ile Asp Asn Leu Arg Thr Asn His Gln Gly Ile Tyr  
65 70 75 80

Val Leu Gln Asp Asn Lys Phe Arg Leu Leu Thr Gln Met Ser Ala Gly  
85 90 95

Lys Gln Tyr Leu Glu His Ala Ser Lys Tyr Leu Ala Phe Thr Cys Gly  
100 105 110

Leu Ile Arg Gly Gly Leu Ser Asn Leu Gly Ile Lys Ser Ile Val Thr

115

120

125

Ala Glu Val Ser Ser Met Pro Ala Cys Lys Phe Gln Val Met Ile Gln  
 130 135 140

Lys Leu  
 145

<210> 1467  
 <211> 277  
 <212> PRT  
 <213> Homo sapiens

<400> 1467  
 Ile Arg His Ser His Thr Gly Gln Gly Ser Cys Trp Val Ala Thr Leu  
 1 5 10 15

Ala Ser Ala Met Ile Pro Pro Ala Asp Ser Leu Leu Lys Tyr Asp Thr  
 20 25 30

Pro Val Leu Val Ser Arg Asn Thr Glu Lys Arg Ser Pro Lys Ala Arg  
 35 40 45

Leu Leu Lys Val Ser Pro Gln Gln Pro Gly Pro Ser Gly Ser Ala Pro  
 50 55 60

Gln Pro Pro Lys Thr Lys Leu Pro Ser Thr Pro Cys Val Pro Asp Pro  
 65 70 75 80

Thr Lys Gln Ala Glu Glu Ile Leu Asn Ala Ile Leu Pro Pro Arg Glu  
 85 90 95

Trp Val Glu Asp Thr Gln Leu Trp Ile Gln Gln Val Ser Ser Thr Pro  
 100 105 110

Ser Thr Arg Met Asp Val Val His Leu Gln Glu Gln Leu Asp Leu Lys  
 115 120 125

Leu Gln Gln Arg Gln Ala Arg Glu Thr Gly Ile Cys Pro Val Arg Arg  
 130 135 140

Glu Leu Tyr Ser Gln Cys Phe Asp Glu Leu Ile Arg Glu Val Thr Ile  
 145 150 155 160

Asn Cys Ala Glu Arg Gly Leu Leu Leu Leu Arg Val Arg Asp Glu Ile  
 165 170 175

Arg Met Thr Ile Ala Ala Tyr Gln Thr Leu Tyr Glu Ser Ser Val Ala  
 180 185 190

Phe Gly Met Arg Lys Ala Leu Gln Ala Glu Gln Gly Lys Ser Asp Met  
 195 200 205

Glu Arg Lys Ile Ala Glu Leu Glu Thr Glu Lys Arg Asp Leu Glu Arg  
 210 215 220

Gln Val Asn Glu Gln Lys Ala Lys Cys Glu Ala Thr Glu Lys Arg Glu  
 225 230 235 240

Ser Glu Arg Arg Gln Val Glu Glu Lys Lys His Asn Glu Glu Ile Gln  
 245 250 255

Phe Leu Lys Arg Thr Asn Gln Gln Leu Lys Ala Gln Leu Glu Gly Ile  
 260 265 270

Ile Ala Pro Lys Lys  
 275

<210> 1468

<211> 263

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1468

Arg Pro Ala Ala Ala Xaa Ser Gly Gly Thr Gly Ser Gly Arg Gly Ser  
 1 5 10 15

Arg Pro Glu Pro Ser Arg Ala Glu Pro Ser Arg Ser Gly Arg Arg Arg  
 20 25 30

Pro Ala Arg Arg Ala Ala Thr Met Ser Val Phe Gly Lys Leu Phe Gly  
 35 40 45

Ala Gly Gly Gly Lys Ala Gly Lys Gly Gly Pro Thr Pro Gln Glu Ala  
 50 55 60

Ile Gln Arg Leu Arg Asp Thr Glu Glu Met Leu Ser Lys Lys Gln Glu  
 65 70 75 80

Phe Leu Glu Lys Lys Ile Glu Gln Glu Leu Thr Ala Ala Lys Lys His  
 85 90 95

Gly Thr Lys Asn Lys Arg Ala Ala Leu Gln Ala Leu Lys Arg Lys Lys

100	105	110
Arg Tyr Glu Lys Gln Leu Ala Gln Ile Asp Gly Thr Leu Ser Thr Ile		
115	120	125
Glu Phe Gln Arg Glu Ala Leu Glu Asn Ala Asn Thr Asn Thr Glu Val		
130	135	140
Leu Lys Asn Met Gly Tyr Ala Ala Lys Ala Met Lys Ala Ala His Asp		
145	150	155
Asn Met Asp Ile Asp Lys Val Asp Glu Leu Met Gln Asp Ile Ala Asp		
165	170	175
Gln Gln Glu Leu Ala Glu Glu Ile Ser Thr Ala Ile Ser Lys Pro Val		
180	185	190
Gly Phe Gly Glu Glu Phe Asp Glu Asp Glu Leu Met Ala Glu Leu Glu		
195	200	205
Glu Leu Glu Gln Glu Glu Leu Asp Lys Asn Leu Leu Glu Ile Ser Gly		
210	215	220
Pro Glu Thr Val Pro Leu Pro Asn Val Pro Ser Ile Ala Leu Pro Ser		
225	230	235
Lys Pro Ala Lys Lys Lys Glu Glu Glu Asp Asp Asp Met Lys Glu Leu		
245	250	255
Glu Asn Trp Ala Gly Ser Met		
260		

&lt;210&gt; 1469

&lt;211&gt; 192

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (101)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (118)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1469

Phe Arg Pro Trp Thr Leu Asp Leu Val Asp Glu Gly His Trp Pro Gly

1 5 10 15  
Pro Arg Val Phe Gly Gly Arg Arg Gly Leu Ala Trp Val Pro Thr Gly  
20 25 30  
Cys Leu Thr Ser Ser Cys Ser Leu His Leu Gly Cys Val Gly Gln Gly  
35 40 45  
Leu Cys Cys His Ser Arg Asn Arg Phe Ser Ser Val Gly Leu Pro Phe  
50 55 60  
Leu His Pro Gly Leu Lys Trp Met Pro Asp Ala Asn Pro Ser Ser Gly  
65 70 75 80  
His Val Gln Pro Ala Gly Gln Pro Arg Gly Ser Leu Ser Ser Arg Ala  
85 90 95  
Lys Asp Ser Arg Xaa Pro Phe Ser Leu Leu Ala Phe Leu Leu Cys Pro  
100 105 110  
Ala Val Ala Ala Gly Xaa Ser Ser Cys Ser Arg Arg Glu Thr Val Leu  
115 120 125  
Pro Leu Ser Pro Ser Leu Pro His Pro Ser Ser Cys Pro Gly Asn Leu  
130 135 140  
Glu Pro Leu Gly Ala Glu Leu Asp Gly Gly Pro Ala Ala Ser Met Cys  
145 150 155 160  
Thr Lys Arg Ser Pro Phe Gln Gly Lys Arg Thr Gly Trp Arg Met Glu  
165 170 175  
Gly Lys Pro Pro Arg Leu Arg Glu Leu Gln Glu Gly Thr Leu Pro Gly  
180 185 190

&lt;210&gt; 1470

&lt;211&gt; 260

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1470

Arg Lys Cys Leu Tyr Leu Val Ala Gly Lys Trp Glu Glu Arg Lys Val  
1 5 10 15

Val Met Ala Ala Ile Ala Ala Ser Glu Val Leu Val Asp Ser Ala Glu  
20 25 30

Glu Gly Ser Leu Ala Ala Ala Ala Glu Leu Ala Ala Gln Lys Arg Glu  
35 40 45

Gln Arg Leu Arg Lys Phe Arg Glu Leu His Leu Met Arg Asn Glu Ala  
50 55 60

Arg Lys Leu Asn His Gln Glu Val Val Glu Glu Asp Lys Arg Leu Lys  
65 70 75 80

Leu Pro Ala Asn Trp Glu Ala Lys Lys Ala Arg Leu Glu Trp Glu Leu  
85 90 95

Lys Glu Glu Glu Lys Lys Lys Glu Cys Ala Ala Arg Gly Glu Asp Tyr  
100 105 110

Glu Lys Val Lys Leu Leu Glu Ile Ser Ala Glu Asp Ala Glu Arg Trp  
115 120 125

Glu Arg Lys Lys Lys Arg Lys Asn Pro Asp Leu Gly Phe Ser Asp Tyr  
130 135 140

Ala Ala Ala Gln Leu Arg Gln Tyr His Arg Leu Thr Lys Gln Ile Lys  
145 150 155 160

Pro Asp Met Glu Thr Tyr Glu Arg Leu Arg Glu Lys His Gly Glu Glu  
165 170 175

Phe Phe Pro Thr Ser Asn Ser Leu Leu His Gly Thr His Val Pro Ser  
180 185 190

Thr Glu Glu Ile Asp Arg Met Val Ile Asp Leu Glu Lys Gln Ile Glu  
195 200 205

Lys Arg Asp Lys Tyr Ser Arg Arg Arg Pro Tyr Asn Asp Asp Ala Asp  
210 215 220

Ile Asp Tyr Ile Asn Glu Arg Asn Ala Lys Phe Asn Lys Lys Ala Glu  
225 230 235 240

Arg Phe Tyr Gly Lys Tyr Thr Ala Glu Ile Lys Gln Asn Leu Glu Arg  
245 250 255

Gly Thr Ala Val  
260

&lt;210&gt; 1471

&lt;211&gt; 121

&lt;212&gt; PRT

<213> Homo sapiens

<400> 1471

Leu Val Lys Gly Met Thr Val Leu Glu Ala Val Leu Glu Ile Gln Ala  
1 5 10 15  
Ile Thr Gly Ser Arg Leu Leu Ser Met Val Pro Gly Pro Ala Arg Pro  
20 25 30  
Pro Gly Ser Cys Trp Asp Pro Thr Gln Cys Thr Arg Thr Trp Leu Leu  
35 40 45  
Ser His Thr Pro Arg Arg Arg Trp Ile Ser Gly Leu Pro Arg Ala Ser  
50 55 60  
Cys Arg Leu Gly Glu Glu Pro Pro Pro Leu Pro Tyr Cys Asp Gln Ala  
65 70 75 80  
Tyr Gly Glu Glu Leu Ser Ile Arg His Arg Glu Thr Trp Ala Trp Leu  
85 90 95  
Ser Arg Thr Asp Thr Ala Trp Pro Gly Ala Pro Gly Val Lys Gln Ala  
100 105 110  
Arg Ile Leu Gly Glu Leu Leu Leu Val  
115 120

<210> 1472

<211> 298

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (79)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (89)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1472

Pro Cys Ala Trp Arg Ala Ala Arg Gly Gly Pro Cys Ala Ala Pro Leu

1	5	10	15
Gly Leu Arg Glu Arg Gly Arg Val Ser Xaa Arg Leu Leu Gly Pro Ala	20	25	30
Ala Ala Arg Ala Leu Leu Leu Gly Leu Pro Gly Arg Thr Leu Glu Ala	35	40	45
Ala Ser Gly Arg Ser Trp Leu Ala Ala Ala Arg Asp Arg Pro Ala Glu	50	55	60
Pro Leu Phe Gly Arg Gly Glu Gly Gly Ser Gln Ala Ser Gly Xaa Ala	65	70	75
Gly Ala Ala Ala Glu Ala Pro Gly Xaa Gln Trp Gly Pro Ala Ser Thr	85	90	95
Pro Ser Leu Tyr Glu Asn Pro Trp Thr Ile Pro Asn Met Leu Ser Met	100	105	110
Thr Arg Ile Gly Leu Ala Pro Val Leu Gly Tyr Leu Ile Ile Glu Glu	115	120	125
Asp Phe Asn Ile Ala Leu Gly Val Phe Ala Leu Ala Gly Leu Thr Asp	130	135	140
Leu Leu Asp Gly Phe Ile Ala Arg Asn Trp Ala Asn Gln Arg Ser Ala	145	150	155
Leu Gly Ser Ala Leu Asp Pro Leu Ala Asp Lys Ile Leu Ile Ser Ile	165	170	175
Leu Tyr Val Ser Leu Thr Tyr Ala Asp Leu Ile Pro Val Pro Leu Thr	180	185	190
Tyr Met Ile Ile Ser Arg Asp Val Met Leu Ile Ala Ala Val Phe Tyr	195	200	205
Val Arg Tyr Arg Thr Leu Pro Thr Pro Arg Thr Leu Ala Lys Tyr Phe	210	215	220
Asn Pro Cys Tyr Ala Thr Ala Arg Leu Lys Pro Thr Phe Ile Ser Lys	225	230	235
Val Asn Thr Ala Val Gln Leu Ile Leu Val Ala Ala Ser Leu Ala Ala	245	250	255
Pro Val Phe Asn Tyr Ala Asp Ser Ile Tyr Leu Gln Ile Leu Trp Cys	260	265	270
Phe Thr Ala Phe Thr Thr Ala Ala Ser Ala Tyr Ser Tyr Tyr His Tyr			



275

280

285

Gly Arg Lys Thr Val Gln Val Ile Lys Asp  
290 295

&lt;210&gt; 1473

&lt;211&gt; 526

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1473

Val Ala Leu Gly Ala Ala Met Ser Ala Gly Glu Val Glu Arg Leu Val  
1 5 10 15

Ser Glu Leu Ser Gly Gly Thr Gly Gly Asp Glu Glu Glu Glu Trp Leu  
20 25 30

Tyr Gly Asp Glu Asn Glu Val Glu Arg Pro Glu Glu Glu Asn Ala Ser  
35 40 45

Ala Asn Pro Pro Ser Gly Ile Glu Asp Glu Thr Ala Glu Asn Gly Val  
50 55 60

Pro Lys Pro Lys Val Thr Glu Thr Glu Asp Asp Ser Asp Ser Asp Ser  
65 70 75 80

Asp Asp Asp Glu Asp Asp Val His Val Thr Ile Gly Asp Ile Lys Thr  
85 90 95

Gly Ala Pro Gln Tyr Gly Ser Tyr Gly Thr Ala Pro Val Asn Leu Asn  
100 105 110

Ile Lys Thr Gly Gly Arg Val Tyr Gly Thr Thr Gly Thr Lys Val Lys  
115 120 125

Gly Val Asp Leu Asp Ala Pro Gly Ser Ile Asn Gly Val Pro Leu Leu  
130 135 140

Glu Val Asp Leu Asp Ser Phe Glu Asp Lys Pro Trp Arg Lys Pro Gly  
145 150 155 160

Ala Asp Leu Ser Asp Tyr Phe Asn Tyr Gly Phe Asn Glu Asp Thr Trp  
165 170 175

Lys Ala Tyr Cys Glu Lys Gln Lys Arg Ile Arg Met Gly Leu Glu Val  
180 185 190

Ile Pro Val Thr Ser Thr Thr Asn Lys Ile Thr Val Gln Gln Gly Arg  
195 200 205

Thr Gly Asn Ser Glu Lys Glu Thr Ala Leu Pro Ser Thr Lys Ala Glu  
210 215 220

Phe Thr Ser Pro Pro Ser Leu Phe Lys Thr Gly Leu Pro Pro Ser Arg  
225 230 235 240

Arg Leu Pro Gly Ala Ile Asp Val Ile Gly Gln Thr Ile Thr Ile Ser  
245 250 255

Arg Val Glu Gly Arg Arg Arg Ala Asn Glu Asn Ser Asn Ile Gln Val  
260 265 270

Leu Ser Glu Arg Ser Ala Thr Glu Val Asp Asn Asn Phe Ser Lys Pro  
275 280 285

Pro Pro Phe Phe Pro Pro Gly Ala Pro Pro Thr His Leu Pro Pro Pro  
290 295 300

Pro Phe Leu Pro Pro Pro Pro Thr Val Ser Thr Ala Pro Pro Leu Ile  
305 310 315 320

Pro Pro Pro Gly Phe Pro Pro Pro Pro Gly Ala Pro Pro Pro Ser Leu  
325 330 335

Ile Pro Thr Ile Glu Ser Gly His Ser Ser Gly Tyr Asp Ser Arg Ser  
340 345 350

Ala Arg Ala Phe Pro Tyr Gly Asn Val Ala Phe Pro His Leu Pro Gly  
355 360 365

Ser Ala Pro Ser Trp Pro Ser Leu Val Asp Thr Ser Lys Gln Trp Asp  
370 375 380

Tyr Tyr Ala Arg Arg Glu Lys Asp Arg Asp Arg Glu Arg Asp Arg Asp  
385 390 395 400

Arg Glu Arg Asp Arg Asp Arg Asp Arg Glu Arg Glu Arg Thr Arg Glu  
405 410 415

Arg Glu Arg Glu Arg Asp His Ser Pro Thr Pro Ser Val Phe Asn Ser  
420 425 430

Asp Glu Glu Arg Tyr Arg Tyr Arg Glu Tyr Ala Glu Arg Gly Tyr Glu  
435 440 445

Arg His Arg Ala Ser Arg Glu Lys Glu Glu Arg His Arg Glu Arg Arg  
450 455 460

His Arg Glu Lys Glu Glu Thr Arg His Lys Ser Ser Arg Ser Asn Ser  
465 470 475 480

Arg Arg Arg His Glu Ser Glu Glu Gly Asp Ser His Arg Arg His Lys  
485 490 495

His Lys Lys Ser Lys Arg Ser Lys Glu Gly Lys Glu Ala Gly Ser Glu  
500 505 510

Pro Ala Pro Glu Gln Glu Ser Thr Glu Ala Thr Pro Ala Glu  
515 520 525

<210> 1474

<211> 70

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1474

Ile Met Val Arg Pro Gly Xaa Thr Leu Arg Leu Asp Lys Lys Met Leu  
1 5 10 15

Leu Lys Arg Ser Ser Phe Lys Arg Ser Cys Ser Cys Val Lys Lys Leu  
20 25 30

Gln Val Trp Phe Val Leu Val Cys Asp His Glu Cys Thr Met Lys Lys  
35 40 45

Thr Leu Asp Ala Ala Phe Phe Ser Ser Glu Asp Ser Leu Gly Ile Pro  
50 55 60

Glu Asp Ser Ser Leu Arg  
65 70

<210> 1475

<211> 345

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (44)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (54)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (129)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (159)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (166)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1475

Lys Lys Val Val Ser Tyr Phe Phe Arg Trp Gln Ser Leu Leu Ile Met  
1 5 10 15

Ile Met Met Phe Lys Ile Pro Pro Ser Asp Gly Leu Leu Ile Leu Pro  
20 25 30

Cys Tyr Gly Ser Met Thr Thr Asp Gln Gln Arg Xaa Ile Phe Leu Pro  
35 40 45

Pro Pro Pro Gly Ile Xaa Lys Cys Val Ile Ser Thr Asn Ile Ser Ala  
50 55 60

Thr Ser Leu Thr Ile Asp Gly Ile Arg Tyr Val Val Asp Gly Gly Phe  
65 70 75 80

Val Lys Gln Leu Asn His Asn Pro Arg Leu Gly Leu Asp Ile Leu Glu  
85 90 95

Val Val Pro Ile Ser Lys Ser Glu Ala Leu Gln Arg Ser Gly Arg Ala  
100 105 110

Gly Arg Thr Ser Ser Gly Lys Cys Phe Arg Ile Tyr Ser Lys Asp Phe  
115 120 125

Xaa Asn Gln Cys Met Pro Asp His Val Ile Pro Glu Ile Lys Arg Thr  
130 135 140

Ser Leu Thr Ser Val Val Leu Thr Leu Lys Cys Leu Ala Ile Xaa Asp  
145 150 155 160

Val Ile Arg Phe Pro Xaa Leu Asp Pro Pro Asn Glu Arg Leu Ile Leu

165	170	175
Glu Ala Leu Lys Gln Leu Tyr Gln Cys Asp Ala Ile Asp Arg Ser Gly		
180	185	190
His Val Thr Arg Leu Gly Leu Ser Met Val Glu Phe Pro Leu Pro Pro		
195	200	205
His Leu Thr Cys Ala Val Ile Lys Ala Ala Ser Leu Asp Cys Glu Asp		
210	215	220
Leu Leu Leu Pro Ile Ala Ala Met Leu Ser Val Glu Asn Val Phe Ile		
225	230	235
Arg Pro Val Asp Pro Glu Tyr Gln Lys Glu Ala Glu Gln Arg His Arg		
245	250	255
Glu Leu Ala Ala Lys Ala Gly Gly Phe Asn Asp Phe Ala Thr Leu Ala		
260	265	270
Val Ile Phe Glu Gln Cys Lys Ser Ser Gly Ala Pro Ala Ser Trp Cys		
275	280	285
Gln Lys His Trp Ile His Trp Arg Cys Leu Phe Ser Ala Phe Arg Val		
290	295	300
Glu Ala Gln Leu Arg Glu Leu Ile Arg Lys Leu Lys Gln Gln Ser Asp		
305	310	315
Ser Gln Lys Arg Pro Leu Lys Ala Leu Asn Met Lys Tyr Tyr Glu Asp		
325	330	335
Val Phe Val Arg Ala Ile Ser Lys Met		
340	345	

&lt;210&gt; 1476

&lt;211&gt; 195

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1476

Tyr	Leu	Leu	Phe	Val	Lys	Asn	Met	Ser	Ser	Leu	Glu	Ile	Ser	Ser	Ser
1				5						10				15	

Cys	Phe	Ser	Leu	Glu	Thr	Lys	Leu	Pro	Leu	Ser	Pro	Pro	Leu	Val	Glu
			20					25					30		

Asp	Ser	Ala	Phe	Glu	Pro	Ser	Arg	Lys	Asp	Met	Asp	Glu	Val	Glu	Glu
		35						40				45			

Lys Ser Lys Asp Val Ile Asn Phe Thr Ala Glu Lys Leu Ser Val Asp  
50 55 60

Glu Val Ser Gln Leu Val Ile Ser Pro Leu Cys Gly Ala Ile Ser Leu  
65 70 75 80

Phe Val Gly Thr Thr Arg Asn Asn Phe Glu Gly Lys Lys Val Ile Ser  
85 90 95

Leu Glu Tyr Glu Ala Tyr Leu Pro Met Ala Glu Asn Glu Val Arg Lys  
100 105 110

Ile Cys Ser Asp Ile Arg Gln Lys Trp Pro Val Lys His Ile Ala Val  
115 120 125

Phe His Arg Leu Gly Leu Val Pro Val Ser Glu Ala Ser Ile Ile Ile  
130 135 140

Ala Val Ser Ser Ala His Arg Ala Ala Ser Leu Glu Ala Val Ser Tyr  
145 150 155 160

Ala Ile Asp Thr Leu Lys Ala Lys Val Pro Ile Trp Lys Lys Glu Ile  
165 170 175

Tyr Glu Glu Ser Ser Thr Trp Lys Gly Asn Lys Glu Cys Phe Trp Ala  
180 185 190

Ser Asn Ser  
195

&lt;210&gt; 1477

&lt;211&gt; 387

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (35)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (370)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (374)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (378)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (379)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1477

Asp Ser Glu Asp Asn Pro Gln Thr Leu Leu Phe Ser Ala Thr Cys Pro  
1 5 10 15

Gln Trp Val Tyr Lys Val Ala Lys Lys Tyr Met Lys Ser Arg Tyr Glu  
20 25 30

Gln Val Xaa Leu Val Gly Lys Met Thr Gln Lys Ala Ala Thr Thr Val  
35 40 45

Glu His Leu Ala Ile Gln Cys His Trp Ser Gln Arg Pro Ala Val Ile  
50 55 60

Gly Asp Val Leu Gln Val Tyr Ser Gly Ser Glu Gly Arg Ala Ile Ile  
65 70 75 80

Phe Cys Glu Thr Lys Lys Asn Val Thr Glu Met Ala Met Asn Pro His  
85 90 95

Ile Lys Gln Asn Ala Gln Cys Leu His Gly Asp Ile Ala Gln Ser Gln  
100 105 110

Arg Glu Ile Thr Leu Lys Gly Phe Arg Glu Gly Ser Phe Lys Val Leu  
115 120 125

Val Ala Thr Asn Val Ala Ala Arg Gly Leu Asp Ile Pro Glu Val Asp  
130 135 140

Leu Val Ile Gln Ser Ser Pro Pro Gln Asp Val Glu Ser Tyr Ile His  
145 150 155 160

Arg Ser Gly Arg Thr Gly Arg Ala Gly Arg Thr Gly Ile Cys Ile Cys  
165 170 175

Phe Tyr Gln Pro Arg Glu Arg Gly Gln Leu Arg Tyr Val Glu Gln Lys  
180 185 190

Ala Gly Ile Thr Phe Lys Arg Val Gly Val Pro Ser Thr Met Asp Leu  
195 200 205

Val Lys Ser Lys Ser Met Asp Ala Ile Arg Ser Leu Ala Ser Val Ser  
210 215 220

Tyr Ala Ala Val Asp Phe Phe Arg Pro Ser Ala Gln Arg Leu Ile Glu  
225 230 235 240

Glu Lys Gly Ala Val Asp Ala Leu Ala Ala Ala Leu Ala His Ile Ser  
245 250 255

Gly Ala Ser Ser Phe Glu Pro Arg Ser Leu Ile Thr Ser Asp Lys Gly  
260 265 270

Phe Val Thr Met Thr Leu Glu Ser Leu Glu Glu Ile Gln Asp Val Ser  
275 280 285

Cys Ala Trp Lys Glu Leu Asn Arg Lys Leu Ser Ser Asn Ala Val Ser  
290 295 300

Gln Ile Thr Arg Met Cys Leu Leu Lys Gly Asn Met Gly Val Cys Phe  
305 310 315 320

Asp Val Pro Thr Thr Glu Ser Glu Arg Leu Gln Ala Glu Trp His Asp  
325 330 335

Ser Asp Trp Ile Leu Ser Val Pro Ala Lys Leu Pro Glu Ile Glu Glu  
340 345 350

Tyr Tyr Asp Gly Asn Thr Ser Ser Asn Ser Arg Gln Arg Ser Gly Trp  
355 360 365

Ser Xaa Gly Arg Ser Xaa Arg Ser Ala Xaa Xaa Gly Gly Arg Ser Gly  
370 375 380

Gly Gly Gln  
385

&lt;210&gt; 1478

&lt;211&gt; 55

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1478

Thr Gly Ala Cys His His Ala Gln Leu Asn Phe Val Phe Leu Val Glu  
1 5 10 15

Thr Gly Phe His His Val Gly Gln Asp Gly Leu Asn Leu Leu Thr Leu  
20 25 30



Arg Ser Ala His Leu Ser Leu Pro Lys Cys Trp Asp Tyr Arg Arg Asn  
35 40 45

Thr Arg Ala Trp Pro Val Leu  
50 55

<210> 1479

<211> 559

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (555)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1479

Ala Arg Ala Asp Gly Arg Asp Gly Arg Gly Gly Arg Arg Ala Pro Trp  
1 5 10 15

Arg Ala Leu Thr Ser Ala Ser Pro Arg Ala Ala Leu Pro Gln Ala Gln  
20 25 30

Cys Pro Glu Leu Gly Ala Ser Pro Ala Arg Gly Thr Leu Leu Ala Lys  
35 40 45

Glu Val Val Ser Pro Val Leu Ser Ser Arg Pro Gly Gly Pro Lys Leu  
50 55 60

Pro Asp Asp Glu Glu Pro Pro Asn Met Ala Ser Glu Ser Gly Lys Leu  
65 70 75 80

Trp Gly Gly Arg Phe Val Gly Ala Val Asp Pro Ile Met Glu Lys Phe  
85 90 95

Asn Ala Ser Ile Ala Tyr Asp Arg His Leu Trp Glu Val Asp Val Gln  
100 105 110

Gly Ser Lys Ala Tyr Ser Arg Gly Leu Glu Lys Ala Gly Leu Leu Thr  
115 120 125

Lys Ala Glu Met Asp Gln Ile Leu His Gly Leu Asp Lys Val Ala Glu  
130 135 140

Glu Trp Ala Gln Gly Thr Phe Lys Leu Asn Ser Asn Asp Glu Asp Ile  
145 150 155 160

His Thr Ala Asn Glu Arg Arg Leu Lys Glu Leu Ile Gly Ala Thr Ala  
165 170 175

Gly Lys Leu His Thr Gly Arg Ser Arg Asn Asp Gln Val Val Thr Asp  
 180 185 190

Leu Arg Leu Trp Met Arg Gln Thr Cys Ser Thr Leu Ser Gly Leu Leu  
 195 200 205

Trp Glu Leu Ile Arg Thr Met Val Asp Arg Ala Glu Ala Glu Arg Asp  
 210 215 220

Val Leu Phe Pro Gly Tyr Thr His Leu Gln Arg Ala Gln Pro Ile Arg  
 225 230 235 240

Trp Ser His Trp Ile Leu Ser His Ala Val Ala Leu Thr Arg Asp Ser  
 245 250 255

Glu Arg Leu Leu Glu Val Arg Lys Arg Ile Asn Val Leu Pro Leu Gly  
 260 265 270

Ser Gly Ala Ile Ala Gly Asn Pro Leu Gly Val Asp Arg Glu Leu Leu  
 275 280 285

Arg Ala Glu Leu Asn Phe Gly Ala Ile Thr Leu Asn Ser Met Asp Ala  
 290 295 300

Thr Ser Glu Arg Asp Phe Val Ala Glu Phe Leu Phe Trp Ala Ser Leu  
 305 310 315 320

Cys Met Thr His Leu Ser Arg Met Ala Glu Asp Leu Ile Leu Tyr Cys  
 325 330 335

Thr Lys Glu Phe Ser Phe Val Gln Leu Ser Asp Ala Tyr Ser Thr Gly  
 340 345 350

Ser Ser Leu Met Pro Gln Lys Lys Asn Pro Asp Ser Leu Glu Leu Ile  
 355 360 365

Arg Ser Lys Ala Gly Arg Val Phe Gly Arg Cys Ala Gly Leu Leu Met  
 370 375 380

Thr Leu Lys Gly Leu Pro Ser Thr Tyr Asn Lys Asp Leu Gln Glu Asp  
 385 390 395 400

Lys Glu Ala Val Phe Glu Val Ser Asp Thr Met Ser Ala Val Leu Gln  
 405 410 415

Val Ala Thr Gly Val Ile Ser Thr Leu Gln Ile His Gln Glu Asn Met  
 420 425 430

Gly Gln Ala Leu Ser Pro Asp Met Leu Ala Thr Asp Leu Ala Tyr Tyr  
 435 440 445

Leu Val Arg Lys Gly Met Pro Phe Arg Gln Ala His Glu Ala Ser Gly  
450 455 460

Lys Ala Val Phe Met Ala Glu Thr Lys Gly Val Ala Leu Asn Gln Leu  
465 470 475 480

Ser Leu Gln Glu Leu Gln Thr Ile Ser Pro Leu Phe Ser Gly Asp Val  
485 490 495

Ile Cys Val Trp Asp Tyr Gly His Ser Val Glu Gln Tyr Gly Ala Leu  
500 505 510

Gly Ala Leu Arg Ala Pro Ala Ser Thr Gly Arg Ser Ala Arg Cys Gly  
515 520 525

Arg Tyr Cys Arg His Ser Arg Pro Arg Ser Ser His Thr Cys Pro Leu  
530 535 540

Ile Lys Trp Ala Arg Glu Glu Lys Lys Lys Xaa Lys Lys Lys Phe  
545 550 555

<210> 1480

<211> 200

<212> PRT

<213> Homo sapiens.

<400> 1480

Ser Leu Gly Glu Leu Pro Thr Asp Pro Ser Ser Asp Glu Pro Val Phe  
1 5 10 15

His Ile Ser His Ile Asp Arg Val Tyr Thr Leu Arg Thr Asp Asn Ile  
20 25 30

Asn Glu Arg Thr Thr Trp Val Gln Lys Ile Lys Ala Ala Ser Glu Gln  
35 40 45

Tyr Ile Asp Thr Glu Lys Lys Lys Arg Glu Lys Ala Tyr Gln Ala Arg  
50 55 60

Ser Gln Lys Thr Ser Gly Ile Gly Arg Leu Met Val His Val Ile Glu  
65 70 75 80

Ala Thr Glu Leu Lys Ala Cys Lys Pro Asn Gly Lys Ser Asn Pro Tyr  
85 90 95

Cys Glu Ile Ser Met Gly Ser Gln Ser Tyr Thr Thr Arg Thr Ile Gln  
100 105 110

Asp Thr Leu Asn Pro Lys Trp Asn Phe Asn Cys Gln Phe Phe Ile Lys  
 115 120 125

Asp Leu Tyr Gln Asp Val Leu Cys Leu Thr Leu Phe Asp Arg Asp Gln  
 130 135 140

Phe Ser Pro Asp Asp Phe Leu Gly Arg Thr Glu Ile Pro Val Ala Lys  
 145 150 155 160

Ile Arg Thr Glu Gln Glu Ser Lys Gly Pro Met Thr Arg Arg Leu Leu  
 165 170 175

Leu His Glu Val Pro Thr Gly Glu Val Trp Val Arg Phe Asp Leu Gln  
 180 185 190

Leu Phe Glu Gln Lys Thr Leu Leu  
 195 200

<210> 1481

<211> 109

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (36)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1481

Gln Leu Leu Leu Leu Pro Pro Lys Ala Pro Arg Asn Pro Phe Leu Pro  
 1 5 10 15

Cys Pro Gly Ser Arg Thr Pro Gly Tyr Ile Trp Lys Val Glu Met Trp  
 20 25 30

Gly Ser Cys Xaa Leu Glu Tyr Tyr Val Ser Pro Pro Ser Ala Val Phe  
 35 40 45

Ser Glu His Val Cys Cys Pro Trp Trp Glu Arg Gly His Cys Ala Val  
 50 55 60

Val His Arg Cys Leu Ser Phe Thr Val Gly Leu Ser Val Cys Leu Ser  
 65 70 75 80

Phe Leu Ser Ala Ala Gln Met Glu Asn Asn Tyr Leu Leu His Trp Arg  
 85 90 95

Glu Arg Lys Ser Leu Arg Ile Pro Lys Gly Thr Leu Ala  
 100 105

&lt;210&gt; 1482

&lt;211&gt; 205

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1482

Asp Pro Arg Val Arg Ala Ala Arg Thr Ala Phe Gly Ala Val Cys Arg  
1 5 10 15

Arg Leu Trp Gln Gly Leu Gly Asn Phe Ser Val Asn Thr Ser Lys Gly  
20 25 30

Asn Thr Ala Lys Asn Gly Gly Leu Leu Leu Ser Thr Asn Met Lys Trp  
35 40 45

Val Gln Phe Ser Asn Leu His Val Asp Val Pro Lys Asp Leu Thr Lys  
50 55 60

Pro Val Val Thr Ile Ser Asp Glu Pro Asp Ile Leu Tyr Lys Arg Leu  
65 70 75 80

Ser Val Leu Val Lys Gly His Asp Lys Ala Val Leu Asp Ser Tyr Glu  
85 90 95

Tyr Phe Ala Val Leu Ala Ala Lys Glu Leu Gly Ile Ser Ile Lys Val  
100 105 110

His Glu Pro Pro Arg Lys Ile Glu Arg Phe Thr Leu Leu Gln Ser Val  
115 120 125

His Ile Tyr Lys Lys His Arg Val Gln Tyr Glu Met Arg Thr Leu Tyr  
130 135 140

Arg Cys Leu Glu Leu Glu His Leu Thr Gly Ser Thr Ala Asp Val Tyr  
145 150 155 160

Leu Glu Tyr Ile Gln Arg Asn Leu Pro Glu Gly Val Ala Met Glu Val  
165 170 175

Thr Lys Thr Gln Leu Glu Gln Leu Pro Glu His Ile Lys Glu Pro Ile  
180 185 190

Trp Glu Thr Leu Ser Glu Glu Lys Glu Glu Ser Lys Ser  
195 200 205

&lt;210&gt; 1483

&lt;211&gt; 370

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1483

Gly Gln Ile Lys Asp Glu Thr Leu Gln Ala Ala Val Arg Glu Ile Leu  
1 5 10 15

Ala Leu Ile Gly Tyr Val Asp Pro Val Lys Gly Arg Gly Ile Arg Ile  
20 25 30

Leu Ser Ile Asp Gly Gly Gly Thr Arg Gly Val Val Ala Leu Gln Thr  
35 40 45

Leu Arg Lys Leu Val Glu Leu Thr Gln Lys Pro Val His Gln Leu Phe  
50 55 60

Asp Tyr Ile Cys Gly Val Ser Thr Gly Ala Ile Leu Ala Phe Met Leu  
65 70 75 80

Gly Leu Phe His Met Pro Leu Asp Glu Cys Glu Glu Leu Tyr Arg Lys  
85 90 95

Leu Gly Ser Asp Val Phe Ser Gln Asn Val Ile Val Gly Thr Val Lys  
100 105 110

Met Ser Trp Ser His Ala Phe Tyr Asp Ser Gln Thr Trp Glu Asn Ile  
115 120 125

Leu Lys Asp Arg Met Gly Ser Ala Leu Met Ile Glu Thr Ala Arg Asn  
130 135 140

Pro Thr Cys Pro Lys Val Ala Ala Val Ser Thr Ile Val Asn Arg Gly  
145 150 155 160

Ile Thr Pro Lys Ala Phe Val Phe Arg Asn Tyr Gly His Phe Pro Gly  
165 170 175

Ile Asn Ser His Tyr Leu Gly Gly Cys Gln Tyr Lys Met Trp Gln Ala  
180 185 190

Ile Arg Ala Ser Ser Ala Ala Pro Gly Tyr Phe Ala Glu Tyr Ala Leu  
195 200 205

Gly Asn Asp Leu His Gln Asp Gly Gly Leu Leu Leu Asn Asn Pro Ser  
210 215 220

Ala Leu Ala Met His Glu Cys Lys Cys Leu Trp Pro Asp Val Pro Leu  
225 230 235 240

Glu Cys Ile Val Ser Leu Gly Thr Gly Arg Tyr Glu Ser Asp Val Arg

245                      250                      255  
 Asn Thr Val Thr Tyr Thr Ser Leu Lys Thr Lys Leu Ser Asn Val Ile  
                          260                      265                      270  
 Asn Ser Ala Thr Asp Thr Glu Glu Val His Ile Met Leu Asp Gly Leu  
                          275                      280                      285  
 Leu Pro Pro Asp Thr Tyr Phe Arg Phe Asn Pro Val Met Cys Glu Asn  
                          290                      295                      300  
 Ile Pro Leu Asp Glu Ser Arg Asn Glu Lys Leu Asp Gln Leu Gln Leu  
                          305                      310                      315                      320  
 Glu Gly Leu Lys Tyr Ile Glu Arg Asn Glu Gln Lys Met Lys Lys Val  
                          325                      330                      335  
 Ala Lys Ile Leu Ser Gln Glu Lys Thr Thr Leu Gln Lys Ile Asn Asp  
                          340                      345                      350  
 Trp Ile Lys Leu Lys Thr Asp Met Tyr Glu Gly Leu Pro Phe Phe Ser  
                          355                      360                      365  
 Lys Leu  
                          370

&lt;210&gt; 1484

&lt;211&gt; 149

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1484

Asp Ser Thr Gly Pro Glu Phe Pro Gly Arg Pro Thr Arg Pro Asn Ser  
                          1                      5                      10                      15  
 Val Leu Thr Ile Asn Ala Thr Met Pro Glu Pro Thr Lys Ser Ala Pro  
                          20                      25                      30  
 Ala Pro Lys Lys Gly Ser Lys Lys Ala Val Thr Lys Ala Gln Lys Lys  
                          35                      40                      45  
 Asp Gly Lys Lys Arg Lys Arg Ser Arg Lys Glu Ser Tyr Ser Val Tyr  
                          50                      55                      60  
 Val Tyr Lys Val Leu Lys Gln Val His Pro Asp Thr Gly Ile Ser Ser  
                          65                      70                      75                      80  
 Lys Ala Met Gly Ile Met Asn Ser Phe Val Asn Asp Ile Phe Glu Arg  
                          85                      90                      95

Ile Ala Gly Glu Ala Ser Arg Leu Ala His Tyr Asn Lys Arg Ser Thr  
100 105 110

Ile Thr Ser Arg Glu Ile Gln Thr Ala Val Arg Leu Leu Leu Pro Gly  
115 120 125

Glu Leu Ala Lys His Ala Val Ser Glu Gly Thr Lys Ala Val Thr Lys  
130 135 140

Tyr Thr Ser Ser Lys  
145

<210> 1485

<211> 142

<212> PRT

<213> Homo sapiens

<400> 1485

Asp Pro Arg Val Arg Thr Phe Pro Pro Thr Leu Leu Leu Leu Leu His  
1 5 10 15

Ser Arg Leu Ser Leu Cys Leu Ser His Phe Leu Pro Ser Pro His Pro  
20 25 30

Pro Gln Cys Thr Glu Glu Gly Asn Arg Val Gln Thr His Ala Ala Pro  
35 40 45

Val Leu Arg Arg Glu Gly Lys Pro Arg Arg Glu Ala Ala Met Asn Val  
50 55 60

Asp His Glu Val Asn Leu Leu Val Glu Glu Ile His Arg Leu Gly Ser  
65 70 75 80

Lys Asn Ala Asp Gly Lys Leu Ser Val Lys Phe Gly Val Leu Phe Arg  
85 90 95

Asp Asp Lys Cys Ala Asn Leu Phe Glu Ala Leu Val Gly Thr Leu Lys  
100 105 110

Ala Ala Lys Arg Arg Lys Ile Val Thr Tyr Pro Gly Glu Leu Leu Leu  
115 120 125

Gln Gly Val His Asp Asp Val Asp Ile Ile Leu Leu Gln Asp  
130 135 140

<210> 1486



<211> 298  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (52)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (183)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (195)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (223)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1486  
Arg Gly Lys Cys Pro Ser Thr Ser Ser Leu Met Lys Glu Thr Ala Ala  
1 5 10 15  
Pro Ser Gln Ile Met Lys Asn Phe Gln Ala Pro Pro Gln Ile Ser Leu  
20 25 30  
Thr Ile Thr Leu Leu Leu Gly Glu Thr Thr Met Met Gln Pro Gln Pro  
35 40 45  
Thr Gln Gln Xaa Thr Pro Gly Pro Ser Ser Gly Gly His Ala Ser Gln  
50 55 60  
Ser Gly Asp Asn Ser Ser Glu Gln Gly Asp Gly Leu Asp Asn Ser Val  
65 70 75 80  
Ala Ser Pro Gly Thr Val Thr Asp Asp Asp Pro Asp Lys Asp Lys Lys  
85 90 95  
Arg Gln Lys Lys Arg Gly Ile Phe Pro Lys Val Ala Thr Asn Ile Met  
100 105 110  
Arg Ala Trp Leu Phe Gln His Leu Thr His Pro Tyr Pro Ser Glu Glu  
115 120 125  
Gln Lys Lys Gln Leu Ala Gln Asp Thr Gly Leu Thr Ile Leu Gln Val  
130 135 140

Asn Asn Trp Phe Ile Asn Ala Arg Arg Arg Ile Val Gln Pro Met Ile  
 145 150 155 160

Asp Gln Ser Asn Arg Ala Gly Phe Leu Leu Asp Pro Ser Val Ser Gln  
 165 170 175

Gly Ala Ala Tyr Ser Pro Xaa Gly Gln Pro Met Gly Ser Phe Val Leu  
 180 185 190

Asp Gly Xaa Gln His Met Gly Ile Arg Pro Ala Gly Leu Gln Ser Met  
 195 200 205

Pro Gly Asp Tyr Val Ser Gln Gly Gly Pro Met Gly Met Ser Xaa Ala  
 210 215 220

Gln Pro Ser Tyr Thr Pro Pro Gln Met Thr Pro His Pro Thr Gln Leu  
 225 230 235 240

Arg His Gly Pro Pro Met His Ser Tyr Leu Pro Ser His Pro His His  
 245 250 255

Pro Ala Met Met Met His Gly Gly Pro Pro Thr His Pro Gly Met Thr  
 260 265 270

Met Ser Ala Gln Ser Pro Thr Met Leu Asn Ser Val Asp Pro Asn Val  
 275 280 285

Gly Gly Gln Val Met Asp Ile His Ala Gln  
 290 295

<210> 1487

<211> 133

<212> PRT

<213> Homo sapiens

<400> 1487

His Gln Ala Ile Lys Pro Gly Tyr Ser Ala Glu Asn Val Ala His Thr  
 1 5 10 15

Asp His Thr Leu Gly Cys Val Thr Ile Val Trp Cys Thr Cys Trp Lys  
 20 25 30

Asn Ser Ser Met Leu Leu Gly Asp Ile Ile Ser Val Gly Asn Met Pro  
 35 40 45

Leu Thr Asp Phe Phe Phe Phe Leu Phe Ala Val Gly Leu Gly Gln Leu  
 50 55 60

Ile Gln Gln Ser Ile Phe Phe Phe Phe Leu Ser Pro Asn Leu Asn Arg  
65 70 75 80

Ser Lys Met Cys Ser Gly Ile Pro Gly Asn Arg Cys Val Cys Lys Val  
85 90 95

Lys Asn Arg Leu Phe Arg Asn Ser Leu Phe Arg Tyr Leu His Pro Ala  
100 105 110

Ser His Val Lys Tyr Leu Ser Leu Lys Gly Leu Arg Cys Thr Ser Phe  
115 120 125

Ile Ser Tyr Phe Ser  
130

<210> 1488  
<211> 42  
<212> PRT  
<213> Homo sapiens

<400> 1488  
Gln Arg Cys Pro Arg Cys Gly His Glu Gly Met Ala Tyr His Thr Arg  
1 5 10 15

Gln Met Arg Ser Ala Asp Glu Gly Gln Thr Val Phe Tyr Thr Cys Thr  
20 25 30

Asn Cys Lys Phe Gln Glu Lys Glu Asp Ser  
35 40

<210> 1489  
<211> 136  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (85)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1489  
His Glu Ala Ala Phe Val Leu Cys Leu Thr Met Pro Glu Pro Ala Lys  
1 5 10 15

Ser Ala Pro Ala Pro Lys Lys Gly Ser Lys Lys Ala Val Thr Lys Ala  
20 25 30

Gln Lys Lys Asp Gly Lys Lys Arg Lys Arg Ser Arg Lys Glu Ser Tyr  
           35                                  40                                  45  
 Ser Ile Tyr Val Tyr Lys Val Leu Lys Gln Val His Pro Asp Thr Gly  
           50                                  55                                  60  
 Ile Ser Ser Lys Ala Met Gly Ile Met Asn Ser Phe Val Asn Asp Ile  
           65                                  70                                  75                                  80  
 Phe Glu Arg Ile Xaa Gly Glu Ala Ser Arg Leu Ala His Tyr Asn Lys  
                                   85                                  90                                  95  
 Arg Ser Thr Ile Thr Ser Arg Glu Ile Gln Thr Ala Val Arg Leu Leu  
                                   100                                  105                                  110  
 Leu Pro Gly Glu Leu Ala Lys His Ala Val Ser Glu Gly Thr Lys Ala  
                                   115                                  120                                  125  
 Val Thr Lys Tyr Thr Ser Ser Lys  
           130                                  135

<210> 1490  
 <211> 235  
 <212> PRT  
 <213> Homo sapiens

<400> 1490  
 Pro Leu Ser Pro Gly Ala Gln Leu Gly Arg Gly Ala Pro Thr Ser Ala  
           1                                  5                                  10                                  15  
 Phe Pro Pro Pro Ala Ala Glu Ala His Pro Ala Ala Arg Arg Gly Leu  
                                   20                                  25                                  30  
 Arg Ser Pro Gln Leu Pro Ser Gly Ala Met Ser Gln Asn Gly Ala Pro  
                                   35                                  40                                  45  
 Gly Met Gln Glu Glu Ser Leu Gln Gly Ser Trp Val Glu Leu His Phe  
           50                                  55                                  60  
 Ser Asn Asn Gly Asn Gly Gly Ser Val Pro Ala Ser Val Ser Ile Tyr  
           65                                  70                                  75                                  80  
 Asn Gly Asp Met Glu Lys Ile Leu Leu Asp Ala Gln His Glu Ser Gly  
                                   85                                  90                                  95  
 Arg Ser Ser Ser Lys Ser Ser His Cys Asp Ser Pro Pro Arg Ser Gln  
                                   100                                  105                                  110  
 Thr Pro Gln Asp Thr Asn Arg Ala Ser Glu Thr Asp Thr His Ser Ile

115 120 125  
Gly Glu Lys Asn Ser Ser Gln Ser Glu Glu Asp Asp Ile Glu Arg Arg  
130 135 140  
Lys Glu Val Glu Ser Ile Leu Lys Lys Asn Ser Asp Trp Ile Trp Asp  
145 150 155 160  
Trp Ser Ser Arg Pro Glu Asn Ile Pro Pro Lys Glu Phe Leu Phe Lys  
165 170 175  
His Pro Lys Arg Thr Ala Thr Leu Ser Met Arg Asn Thr Ser Val Met  
180 185 190  
Lys Lys Gly Gly Ile Phe Ser Ala Glu Phe Leu Lys Val Phe Leu Pro  
195 200 205  
Ser Leu Leu Leu Ser His Leu Leu Ala Ile Gly Leu Gly Ile Tyr Ile  
210 215 220  
Gly Arg Arg Leu Thr Thr Ser Thr Ser Thr Phe  
225 230 235

&lt;210&gt; 1491

&lt;211&gt; 275

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (65)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1491

Lys Pro Glu Lys Lys Gly Val His Leu Asn Ser Asp Leu Pro Gln Met  
1 5 10 15  
Gln His Leu Trp Ile Pro Leu Cys Ala Pro Asn Ser Leu Ser Gln Leu  
20 25 30  
Pro Ile Thr Asp Thr Ile Arg Lys Asp Ser Lys Glu Lys Lys Lys Arg  
35 40 45  
Lys Ala Ser Lys Leu Thr Leu Trp Gly Thr Tyr His Gly Met Thr Leu  
50 55 60  
Xaa Ser Val Thr Glu Gly Ala Ser Ala Arg Lys Thr Gln Thr Pro Ala  
65 70 75 80

Ala Gln Pro Val Pro Arg Pro Val Ser Gln Ala Arg Pro Pro Pro Asn  
                     85                    90                    95  
 Gln Lys Lys Gly Ser Arg Thr Pro Ile Ile Ile Ile Pro Ala Ala Thr  
                     100                    105                    110  
 Thr Ser Leu Ile Thr Met Leu Asn Ala Lys Asp Leu Leu Gln Asp Leu  
                     115                    120                    125  
 Lys Phe Val Pro Ser Asp Glu Lys Lys Lys Gln Gly Cys Gln Arg Glu  
                     130                    135                    140  
 Asn Glu Thr Leu Ile Gln Arg Arg Lys Asp Gln Met Gln Pro Gly Gly  
                     145                    150                    155                    160  
 Thr Ala Ile Ser Val Thr Val Pro Tyr Arg Val Val Asp Gln Pro Leu  
                     165                    170                    175  
 Lys Leu Met Pro Gln Asp Trp Asp Arg Val Val Ala Val Phe Val Gln  
                     180                    185                    190  
 Gly Pro Ala Trp Gln Phe Lys Gly Trp Pro Trp Leu Leu Pro Asp Gly  
                     195                    200                    205  
 Ser Pro Val Asp Ile Phe Ala Lys Ile Lys Ala Phe His Leu Lys Tyr  
                     210                    215                    220  
 Asp Glu Val Arg Leu Asp Pro Asn Val Gln Lys Trp Asp Val Thr Val  
                     225                    230                    235                    240  
 Leu Glu Leu Ser Tyr His Lys Arg His Leu Asp Arg Pro Val Phe Leu  
                     245                    250                    255  
 Arg Phe Trp Glu Thr Leu Asp Arg Tyr Met Val Lys His Lys Ser His  
                     260                    265                    270  
 Leu Arg Phe  
                     275

<210> 1492  
 <211> 380,  
 <212> PRT  
 <213> Homo sapiens

<400> 1492  
 Gly Leu Arg Leu Gly Ser Trp Ser Gly Glu Glu Lys Gly Ile Pro Thr  
   1                    5                    10                    15  
 Cys Gly Thr Leu Gly Gly Pro Arg Gly Arg Arg Leu Pro Ile Asp Cys

20 25 30

Gly Arg Cys Lys Gly Arg Ser Leu Trp Arg Leu Val Gly Val Leu Gly  
35 40 45

Ser Ala Gly Gly Gly Arg Gly Val Ser Glu Cys Glu Arg Gly Thr Gly  
50 55 60

Ile Pro Asn Leu Arg Ala Ser Arg Leu Trp Arg Arg Gly Gly Arg Ala  
65 70 75 80

Gln Ala Ala Met Arg Asp Arg Thr His Glu Leu Arg Gln Gly Asp Asp  
85 90 95

Ser Ser Asp Glu Glu Asp Lys Glu Arg Val Ala Leu Val Val His Pro  
100 105 110

Gly Thr Ala Arg Leu Gly Ser Pro Asp Glu Glu Phe Phe His Lys Val  
115 120 125

Arg Thr Ile Arg Gln Thr Ile Val Lys Leu Gly Asn Lys Val Gln Glu  
130 135 140

Leu Glu Lys Gln Gln Val Thr Ile Leu Ala Thr Pro Leu Pro Glu Glu  
145 150 155 160

Ser Met Lys Gln Glu Leu Gln Asn Leu Arg Asp Glu Ile Lys Gln Leu  
165 170 175

Gly Arg Glu Ile Arg Leu Gln Leu Lys Ala Ile Glu Pro Gln Lys Glu  
180 185 190

Glu Ala Asp Glu Asn Tyr Asn Ser Val Asn Thr Arg Met Arg Lys Thr  
195 200 205

Gln His Gly Val Leu Ser Gln Gln Phe Val Glu Leu Ile Asn Lys Cys  
210 215 220

Asn Ser Met Gln Ser Glu Tyr Arg Glu Lys Asn Val Glu Arg Ile Arg  
225 230 235 240

Arg Gln Leu Lys Ile Thr Asn Ala Gly Met Val Ser Asp Glu Glu Leu  
245 250 255

Glu Gln Met Leu Asp Ser Gly Gln Ser Glu Val Phe Val Ser Asn Ile  
260 265 270

Leu Lys Asp Thr Gln Val Thr Arg Gln Ala Leu Asn Glu Ile Ser Ala  
275 280 285

Arg His Ser Glu Ile Gln Gln Leu Glu Arg Ser Ile Arg Glu Leu His

290

295 .

300

Asp Ile Phe Thr Phe Leu Ala Thr Glu Val Glu Met Gln Gly Glu Met  
 305 310 315 320

Ile Asn Arg Ile Glu Lys Asn Ile Leu Ser Ser Ala Asp Tyr Val Glu  
 325 330 335

Arg Gly Gln Glu His Val Lys Thr Ala Leu Glu Asn Gln Lys Lys Ala  
 340 345 350

Arg Lys Lys Lys Val Leu Ile Ala Ile Cys Val Ser Ile Thr Val Val  
 355 360 365

Leu Leu Ala Val Ile Ile Gly Val Thr Val Val Gly  
 370 375 380

&lt;210&gt; 1493

&lt;211&gt; 88

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (10)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (29)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (73)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1493

Ala Gln Lys Glu Leu Thr Lys Ala His Xaa Leu Glu Val Arg Leu His  
 1 5 10 15

Thr Phe Ser Met Phe Gly Met Pro Arg Leu Pro Pro Xaa Asp Arg Arg  
 20 25 30

His Trp Glu Ile Gly Glu Gly Gly Asp Ser Gly Leu Thr Ile Glu Lys  
 35 40 45

Ser Trp Arg Glu Leu Val Pro Gly His Lys Glu Met Ser Gln Glu Leu  
 50 55 60



Cys His Gln Gln Glu Ala Leu Trp Xaa Leu Leu Thr Thr Glu Leu Ile  
65 70 75 80

Leu Arg Glu Lys Ala Ser Arg Ser  
85

<210> 1494

<211> 469

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (299)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1494

Thr Ser Trp Met His Thr Arg Phe Ser Arg Arg Asn Trp Gly Lys Arg  
1 5 10 15

Thr Gly Thr Val Gln Val Leu Lys Arg Ser Gly Arg Glu Leu Ile Glu  
20 25 30

Asn Ser Arg Asp Asp Thr Thr Trp Val Lys Gly Gln Leu Gln Glu Leu  
35 40 45

Ser Thr Arg Trp Asp Thr Val Cys Lys Leu Ser Val Ser Lys Gln Ser  
50 55 60

Arg Leu Glu Gln Ala Leu Lys Gln Ala Glu Val Phe Arg Asp Thr Val  
65 70 75 80

His Met Leu Leu Glu Trp Leu Ser Glu Ala Glu Gln Thr Leu Arg Phe  
85 90 95

Arg Gly Ala Leu Pro Asp Asp Thr Glu Ala Leu Gln Ser Leu Ile Asp  
100 105 110

Thr His Lys Glu Phe Met Lys Lys Val Glu Glu Lys Arg Val Asp Val  
115 120 125

Asn Ser Ala Val Ala Met Gly Glu Val Ile Leu Ala Val Cys His Pro  
130 135 140

Asp Cys Ile Thr Thr Ile Lys His Trp Ile Thr Ile Ile Arg Ala Arg  
145 150 155 160

Phe Glu Glu Val Leu Thr Trp Ala Lys Gln His Gln Gln Arg Leu Glu

165					170					175					
Thr	Ala	Leu	Ser	Glu	Leu	Val	Ala	Asn	Ala	Glu	Leu	Leu	Glu	Glu	Leu
		180						185					190		
Leu	Ala	Trp	Ile	Gln	Trp	Ala	Glu	Thr	Thr	Leu	Ile	Gln	Arg	Asp	Gln
		195					200					205			
Glu	Pro	Ile	Pro	Gln	Asn	Ile	Asp	Arg	Val	Lys	Ala	Leu	Ile	Ala	Glu
		210				215					220				
His	Gln	Thr	Phe	Met	Glu	Glu	Met	Thr	Arg	Lys	Gln	Pro	Asp	Val	Asp
225					230					235					240
Arg	Val	Thr	Lys	Thr	Tyr	Lys	Arg	Lys	Asn	Ile	Glu	Pro	Thr	His	Ala
			245					250						255	
Pro	Phe	Ile	Glu	Lys	Ser	Arg	Ser	Gly	Gly	Arg	Lys	Ser	Leu	Ser	Gln
		260						265					270		
Pro	Thr	Pro	Pro	Pro	Met	Pro	Ile	Leu	Ser	Gln	Ser	Glu	Ala	Lys	Asn
		275					280					285			
Pro	Arg	Ile	Asn	Gln	Leu	Ser	Ala	Arg	Trp	Xaa	Gln	Val	Trp	Leu	Leu
	290					295					300				
Ala	Leu	Glu	Arg	Gln	Arg	Lys	Leu	Asn	Asp	Ala	Leu	Asp	Arg	Leu	Glu
305					310					315					320
Glu	Leu	Lys	Glu	Phe	Ala	Asn	Phe	Asp	Phe	Asp	Val	Trp	Arg	Lys	Lys
			325					330						335	
Tyr	Met	Arg	Trp	Met	Asn	His	Lys	Lys	Ser	Arg	Val	Met	Asp	Phe	Phe
		340						345					350		
Arg	Arg	Ile	Asp	Lys	Asp	Gln	Asp	Gly	Lys	Ile	Thr	Arg	Gln	Glu	Phe
		355					360					365			
Ile	Asp	Gly	Ile	Leu	Ala	Ser	Lys	Phe	Pro	Thr	Thr	Lys	Leu	Glu	Met
	370					375					380				
Thr	Ala	Val	Ala	Asp	Ile	Phe	Asp	Arg	Asp	Gly	Asp	Gly	Tyr	Ile	Asp
385					390					395					400
Tyr	Tyr	Glu	Phe	Val	Ala	Ala	Leu	His	Pro	Asn	Lys	Asp	Ala	Tyr	Arg
		405						410					415		
Pro	Thr	Thr	Asp	Ala	Asp	Lys	Ile	Glu	Asp	Glu	Val	Thr	Arg	Gln	Val
		420						425					430		
Ala	Gln	Cys	Lys	Cys	Ala	Lys	Arg	Phe	Gln	Val	Glu	Gln	Ile	Gly	Glu

435

440

445

Asn Lys Tyr Arg Val Arg Lys Arg Lys Ser Ser Pro Leu Leu Trp Trp  
450 455 460

Phe Leu Ile Cys Gly  
465

&lt;210&gt; 1495

&lt;211&gt; 366

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1495

Thr Asn Tyr Ile Ser Arg Gln Ala Ala Glu Gly Gly Arg Val Glu Gly  
1 5 10 15

Pro Pro Leu Arg Pro Pro Ala Thr Ser Arg Arg Trp Ala Gly Pro Thr  
20 25 30

Leu Trp Arg Met Glu Val Thr Gly Asp Ala Gly Val Pro Glu Ser Gly  
35 40 45

Glu Ile Arg Thr Leu Lys Pro Cys Leu Leu Arg Arg Asn Tyr Ser Arg  
50 55 60

Glu Gln His Gly Val Ala Ala Ser Cys Leu Glu Asp Leu Arg Ser Lys  
65 70 75 80

Ala Cys Asp Ile Leu Ala Ile Asp Lys Ser Leu Thr Pro Val Thr Leu  
85 90 95

Val Leu Ala Glu Asp Gly Thr Ile Val Asp Asp Asp Asp Tyr Phe Leu  
100 105 110

Cys Leu Pro Ser Asn Thr Lys Phe Val Ala Leu Ala Ser Asn Glu Lys  
115 120 125

Trp Ala Tyr Asn Asn Ser Asp Gly Gly Thr Ala Trp Ile Ser Gln Glu  
130 135 140

Ser Phe Asp Val Asp Glu Thr Asp Ser Gly Ala Gly Leu Lys Trp Lys  
145 150 155 160

Asn Val Ala Arg Gln Leu Lys Glu Asp Leu Ser Ser Ile Ile Leu Leu  
165 170 175

Ser Glu Glu Asp Leu Gln Met Leu Val Asp Ala Pro Cys Ser Asp Leu  
180 185 190

Ala Gln Glu Leu Arg Gln Ser Cys Ala Thr Val Gln Arg Leu Gln His  
195 200 205

Thr Leu Gln Gln Val Leu Asp Gln Arg Glu Glu Val Arg Gln Ser Lys  
210 215 220

Gln Leu Leu Gln Leu Tyr Leu Gln Ala Leu Glu Lys Glu Gly Ser Leu  
225 230 235 240

Leu Ser Lys Gln Glu Glu Ser Lys Ala Ala Phe Gly Glu Glu Val Asp  
245 250 255

Ala Val Asp Thr Gly Ile Ser Arg Glu Thr Ser Ser Asp Val Ala Leu  
260 265 270

Ala Ser His Ile Leu Thr Ala Leu Arg Glu Lys Gln Ala Pro Glu Leu  
275 280 285

Ser Leu Ser Ser Gln Asp Leu Glu Leu Val Thr Lys Glu Asp Pro Lys  
290 295 300

Ala Leu Ala Val Ala Leu Asn Trp Asp Ile Lys Lys Thr Glu Thr Val  
305 310 315 320

Gln Glu Ala Cys Glu Arg Glu Leu Ala Leu Arg Leu Gln Gln Thr Gln  
325 330 335

Ser Leu His Ser Leu Arg Ser Ile Ser Ala Ser Lys Ala Ser Pro Pro  
340 345 350

Gly Asp Leu Gln Asn Pro Lys Arg Ala Arg Gln Asp Pro Thr  
355 360 365

<210> 1496

<211> 578

<212> PRT

<213> Homo sapiens

<400> 1496

Phe Pro Phe Glu Leu Val Thr Asn Pro Asp Phe Ser Pro Thr Pro Val  
1 5 10 15

Thr Phe Glu Lys Ala Leu Asn Ala Gly Phe Ile Gln Ala Thr Asp Tyr  
20 25 30

Val Glu Ile Trp Gln Ala Tyr Leu Asp Tyr Leu Arg Arg Arg Val Asp  
35 40 45

Phe Lys Gln Asp Ser Ser Lys Glu Leu Glu Glu Leu Arg Ala Ala Phe  
50 55 60

Thr Arg Ala Leu Glu Tyr Leu Lys Gln Glu Val Glu Glu Arg Phe Asn  
65 70 75 80

Glu Ser Gly Asp Pro Ser Cys Val Ile Met Gln Asn Trp Ala Arg Ile  
85 90 95

Glu Ala Arg Leu Cys Asn Asn Met Gln Lys Ala Arg Glu Leu Trp Asp  
100 105 110

Ser Ile Met Thr Arg Gly Asn Ala Lys Tyr Ala Asn Met Trp Leu Glu  
115 120 125

Tyr Tyr Asn Leu Glu Arg Ala His Gly Asp Thr Gln His Cys Arg Lys  
130 135 140

Ala Leu His Arg Ala Val Gln Cys Thr Ser Asp Tyr Pro Glu His Val  
145 150 155 160

Cys Glu Val Leu Leu Thr Met Glu Arg Thr Glu Gly Ser Leu Glu Asp  
165 170 175

Trp Asp Ile Ala Val Gln Lys Thr Glu Thr Arg Leu Ala Arg Val Asn  
180 185 190

Glu Gln Arg Met Lys Ala Ala Glu Lys Glu Ala Ala Leu Val Gln Gln  
195 200 205

Glu Glu Glu Lys Ala Glu Gln Arg Lys Arg Ala Arg Ala Glu Lys Lys  
210 215 220

Ala Leu Lys Lys Lys Lys Lys Ile Arg Gly Pro Glu Lys Arg Gly Ala  
225 230 235 240

Asp Glu Asp Asp Glu Lys Glu Trp Gly Asp Asp Glu Glu Glu Gln Pro  
245 250 255

Ser Lys Arg Arg Arg Val Glu Asn Ser Ile Pro Ala Ala Gly Glu Thr  
260 265 270

Gln Asn Val Glu Val Ala Ala Gly Pro Ala Gly Lys Cys Ala Ala Val  
275 280 285

Asp Val Glu Pro Pro Ser Lys Gln Lys Glu Lys Ala Ala Ser Leu Lys  
290 295 300

Arg Asp Met Pro Lys Val Leu His Asp Ser Ser Lys Asp Ser Ile Thr  
305 310 315 320

Val Phe Val Ser Asn Leu Pro Tyr Ser Met Gln Glu Pro Asp Thr Lys  
 325 330 335  
 Leu Arg Pro Leu Phe Glu Ala Cys Gly Glu Val Val Gln Ile Arg Pro  
 340 345 350  
 Ile Phe Ser Asn Arg Gly Asp Phe Arg Gly Tyr Cys Tyr Val Glu Phe  
 355 360 365  
 Lys Glu Glu Lys Ser Ala Leu Gln Ala Leu Glu Met Asp Arg Lys Ser  
 370 375 380  
 Val Glu Gly Arg Pro Met Phe Val Ser Pro Cys Val Asp Lys Ser Lys  
 385 390 395 400  
 Asn Pro Asp Phe Lys Val Phe Arg Tyr Ser Thr Ser Leu Glu Lys His  
 405 410 415  
 Lys Leu Phe Ile Ser Gly Leu Pro Phe Ser Cys Thr Lys Glu Glu Leu  
 420 425 430  
 Glu Glu Ile Cys Lys Ala His Gly Thr Val Lys Asp Leu Arg Leu Val  
 435 440 445  
 Thr Asn Arg Ala Gly Lys Pro Lys Gly Leu Ala Tyr Val Glu Tyr Glu  
 450 455 460  
 Asn Glu Ser Gln Ala Ser Gln Ala Val Met Lys Met Asp Gly Met Thr  
 465 470 475 480  
 Ile Lys Glu Asn Ile Ile Lys Val Ala Ile Ser Asn Pro Pro Gln Arg  
 485 490 495  
 Lys Val Pro Glu Lys Pro Glu Thr Arg Lys Ala Pro Gly Gly Pro Met  
 500 505 510  
 Leu Leu Pro Gln Thr Tyr Gly Ala Arg Gly Lys Gly Arg Thr Gln Leu  
 515 520 525  
 Ser Leu Leu Pro Arg Ala Leu Gln Arg Pro Ser Ala Ala Ala Pro Gln  
 530 535 540  
 Ala Glu Asn Gly Pro Ala Ala Ala Pro Ala Val Ala Ala Pro Ala Ala  
 545 550 555 560  
 Thr Glu Ala Pro Lys Met Ser Asn Ala Asp Phe Ala Lys Leu Phe Leu  
 565 570 575  
 Arg Lys

<210> 1497  
<211> 316  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (62)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (214)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1497  
Pro Trp Ser Ala Ala Ala Gly Leu Arg Ala Gly Val Arg Val Pro Arg  
1 5 10 15  
Ser Pro Gly Pro Ser Arg Arg Met Pro Ala Arg Ser Gly Ala Gln Phe  
20 25 30  
Cys Arg Arg Met Gly Gln Lys Lys Gln Arg Pro Ala Arg Ala Gly Gln  
35 40 45  
Pro His Ser Ser Ser Asp Ala Ala Gln Ala Pro Ala Glu Xaa Pro His  
50 55 60  
Ser Ser Ser Asp Ala Ala Gln Ala Pro Cys Pro Arg Glu Arg Cys Leu  
65 70 75 80  
Gly Pro Pro Thr Thr Pro Gly Pro Tyr Arg Ser Ile Tyr Phe Ser Ser  
85 90 95  
Pro Lys Gly His Leu Thr Arg Leu Gly Leu Glu Phe Phe Asp Gln Pro  
100 105 110  
Ala Val Pro Leu Ala Arg Ala Phe Leu Gly Gln Val Leu Val Arg Arg  
115 120 125  
Leu Pro Asn Gly Thr Glu Leu Arg Gly Arg Ile Val Glu Thr Glu Ala  
130 135 140  
Tyr Leu Gly Pro Glu Asp Glu Ala Ala His Ser Arg Gly Gly Arg Gln  
145 150 155 160  
Thr Pro Arg Asn Arg Gly Met Phe Met Lys Pro Gly Thr Leu Tyr Val  
165 170 175

Tyr Ile Ile Tyr Gly Met Tyr Phe Cys Met Asn Ile Ser Ser Gln Gly  
 180 185 190  
 Asp Gly Ala Cys Val Leu Leu Arg Ala Leu Glu Pro Leu Glu Gly Leu  
 195 200 205  
 Glu Thr Met Arg Gln Xaa Arg Ser Thr Leu Arg Lys Gly Thr Ala Ser  
 210 215 220  
 Arg Val Leu Lys Asp Arg Glu Leu Cys Ser Gly Pro Ser Lys Leu Cys  
 225 230 235 240  
 Gln Ala Leu Ala Ile Asn Lys Ser Phe Asp Gln Arg Asp Leu Ala Gln  
 245 250 255  
 Asp Glu Ala Val Trp Leu Glu Arg Gly Pro Leu Glu Pro Ser Glu Pro  
 260 265 270  
 Ala Val Val Ala Ala Ala Arg Val Gly Val Gly His Ala Gly Glu Trp  
 275 280 285  
 Ala Arg Lys Pro Leu Arg Phe Tyr Val Arg Gly Ser Pro Trp Val Ser  
 290 295 300  
 Val Val Asp Arg Val Ala Glu Gln Asp Thr Gln Ala  
 305 310 315

&lt;210&gt; 1498

&lt;211&gt; 82

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1498

Lys Cys Asn Tyr Val Leu Ser Ala Ser Lys Phe Lys Thr Tyr Trp Asn  
 1 5 10 15  
 Val Glu Ser Val Val Thr Lys Tyr Val Arg Arg Thr Lys Gly Met Cys  
 20 25 30  
 Lys Ser Leu Met Pro Ile Ser Ser Glu Asn Leu Ser Lys Leu Thr Gly  
 35 40 45  
 Pro Ala Glu Thr Ala His Ser Ala Arg Arg Asn His Asp Ile Ala Leu  
 50 55 60  
 Pro Cys Gly Arg Ser Thr Cys Leu Glu Asn Thr Val Leu Tyr Tyr His  
 65 70 75 80  
 Tyr Gly



<210> 1499  
<211> 75  
<212> PRT  
<213> Homo sapiens

<400> 1499  
Ser Cys Cys Leu Glu Asn Tyr Ser Phe Leu Ser Trp Ser Ala Asp Arg  
1 5 10 15  
Asn Ser His Thr Asn Leu Ile Gly Leu Lys Cys Ile Phe Arg Gln Gln  
20 25 30  
Gly Thr Lys Gln Arg Gly Thr Gly Leu Leu Asp Trp Arg Lys Ser Leu  
35 40 45  
Leu Ala Trp Trp Ala Val Phe Gln Glu Arg Pro Cys Pro Cys Ser Leu  
50 55 60  
Leu Gly Thr Phe Gln Phe Arg Phe Pro Leu Val  
65 70 75

<210> 1500  
<211> 144  
<212> PRT  
<213> Homo sapiens

<400> 1500  
Lys Arg Ser Trp Ala Gly Gly Arg Ala Arg Arg Lys Leu Phe Gly Gly  
1 5 10 15  
Leu Val Trp Ile Leu Val Ala Ser Ser Asn Val Pro Leu Pro Leu Leu  
20 25 30  
Gln Gly Trp Val Met Phe Val Ser Val Thr Ala Phe Phe Phe Ser Leu  
35 40 45  
Leu Phe Leu Gly Met Phe Leu Ser Gly Met Val Ala Gln Ile Asp Ala  
50 55 60  
Asn Trp Asn Phe Leu Asp Phe Ala Tyr His Phe Thr Val Phe Val Phe  
65 70 75 80  
Tyr Phe Gly Ala Phe Leu Leu Glu Ala Ala Ala Thr Ser Leu His Asp  
85 90 95

Leu His Cys Asn Thr Thr Ile Thr Gly Gln Pro Leu Leu Ser Asp Asn  
100 105 110

Gln Tyr Asn Ile Asn Val Ala Ala Ser Ile Phe Ala Phe Met Thr Thr  
115 120 125

Ala Cys Tyr Gly Cys Ser Leu Gly Leu Ala Leu Arg Arg Trp Arg Pro  
130 135 140

<210> 1501

<211> 123

<212> PRT

<213> Homo sapiens

<400> 1501

Val Leu Pro Gly Gly Ser Leu Lys Val Gln Lys Cys Cys Pro Lys Pro  
1 5 10 15

Ser Leu Asn Ile Ser Gly Asn Arg Ser Cys Ser Thr Met Gly Val Gln  
20 25 30

Cys Pro Cys Leu Pro Leu Thr Gln Leu Trp Phe Ile Leu Leu Val Cys  
35 40 45

Leu His Arg Pro Asp Ala Arg Val Pro Cys Leu Ile Leu His Leu Leu  
50 55 60

Ser His Trp Gly Ser Leu Pro Ser Asp Ala Leu Ala Lys Ile Ala Leu  
65 70 75 80

Val Cys Ser Arg Lys Glu Gly Gln Ile Pro Gly Ile Val Arg Ala Ala  
85 90 95

Glu Leu Tyr Arg Ile Gly Leu Pro Phe Pro Pro Val Trp Leu Ala Leu  
100 105 110

His Ser Leu Gln Ile Pro Pro Thr Ser Thr Gln  
115 120

<210> 1502

<211> 426

<212> PRT

<213> Homo sapiens

&lt;400&gt; 1502

Glu Ile Tyr Ser Leu Ser Arg Phe Ile Glu Val Lys Met Ser Lys Lys  
1 5 10 15

Ile Ser Gly Gly Ser Val Val Glu Met Gln Gly Asp Glu Met Thr Arg  
20 25 30

Ile Ile Trp Glu Leu Ile Lys Glu Lys Leu Ile Phe Pro Tyr Val Glu  
35 40 45

Leu Asp Leu His Ser Tyr Asp Leu Gly Ile Glu Asn Arg Asp Ala Thr  
50 55 60

Asn Asp Gln Val Thr Lys Asp Ala Ala Glu Ala Ile Lys Lys His Asn  
65 70 75 80

Val Gly Val Lys Cys Ala Thr Ile Thr Pro Asp Glu Lys Arg Val Glu  
85 90 95

Glu Phe Lys Leu Lys Gln Met Trp Lys Ser Pro Asn Gly Thr Ile Arg  
100 105 110

Asn Ile Leu Gly Gly Thr Val Phe Arg Glu Ala Ile Ile Cys Lys Asn  
115 120 125

Ile Pro Arg Leu Val Ser Gly Trp Val Lys Pro Ile Ile Ile Gly Arg  
130 135 140

His Ala Tyr Gly Asp Gln Tyr Arg Ala Thr Asp Phe Val Val Pro Gly  
145 150 155 160

Pro Gly Lys Val Glu Ile Thr Tyr Thr Pro Ser Asp Gly Thr Gln Lys  
165 170 175

Val Thr Tyr Leu Val His Asn Phe Glu Glu Gly Gly Gly Val Ala Met  
180 185 190

Gly Met Tyr Asn Gln Asp Lys Ser Ile Glu Asp Phe Ala His Ser Ser  
195 200 205

Phe Gln Met Ala Leu Ser Lys Gly Trp Pro Leu Tyr Leu Ser Thr Lys  
210 215 220

Asn Thr Ile Leu Lys Lys Tyr Asp Gly Arg Phe Lys Asp Ile Phe Gln  
225 230 235 240

Glu Ile Tyr Asp Lys Gln Tyr Lys Ser Gln Phe Glu Ala Gln Lys Ile  
245 250 255

Trp Tyr Glu His Arg Leu Ile Asp Asp Met Val Ala Gln Ala Met Lys  
260 265 270

Ser Glu Gly Gly Phe Ile Trp Ala Cys Lys Asn Tyr Asp Gly Asp Val  
275 280 285

Gln Ser Asp Ser Val Ala Gln Gly Tyr Gly Ser Leu Gly Met Met Thr  
290 295 300

Ser Val Leu Val Cys Pro Asp Gly Lys Thr Val Glu Ala Glu Ala Ala  
305 310 315 320

His Gly Thr Val Thr Arg His Tyr Arg Met Tyr Gln Lys Gly Gln Glu  
325 330 335

Thr Ser Thr Asn Pro Ile Ala Ser Ile Phe Ala Trp Thr Arg Gly Leu  
340 345 350

Ala His Arg Ala Lys Leu Asp Asn Asn Lys Glu Leu Ala Phe Phe Ala  
355 360 365

Asn Ala Leu Glu Glu Val Ser Ile Glu Thr Ile Glu Ala Gly Phe Met  
370 375 380

Thr Lys Asp Leu Ala Ala Cys Ile Lys Gly Leu Pro Asn Val Gln Arg  
385 390 395 400

Ser Asp Tyr Leu Asn Thr Phe Glu Phe Met Asp Lys Leu Gly Glu Asn  
405 410 415

Leu Lys Ile Lys Leu Ala Gln Ala Lys Leu  
420 425

<210> 1503

<211> 65

<212> PRT

<213> Homo sapiens

<400> 1503

Phe Asn Lys Arg Lys Met Lys Tyr Ser Val Ala Tyr Ile Phe His Arg  
1 5 10 15

Ala His Glu His Leu Leu Tyr Leu Leu Gly Leu Ala Lys Ile Ile Tyr  
20 25 30

Ser Ala Ala Leu Pro Lys Cys Leu His Thr Lys Leu Lys Val Val Leu  
35 40 45

Ile Tyr Val Ser Trp Lys Leu Phe Ile Lys Phe Lys Gly Ile Ser Phe  
50 55 60

Arg  
65

<210> 1504  
<211> 82  
<212> PRT  
<213> Homo sapiens

<400> 1504  
Phe Phe Val Ile Pro Ser Ser Gly Ser Ile Cys Phe Cys Ser Leu Val  
1 5 10 15  
Thr Val Leu Met Phe Asn Cys Cys Thr Leu Lys Pro Lys Ser Val Thr  
20 25 30  
Met His Thr Val Thr Lys Val Leu Gly Leu Gln Ser Cys Leu Leu Tyr  
35 40 45  
Lys Glu Asn Phe Lys Cys Cys Cys Lys Leu Thr Ser Tyr Thr Ile Leu  
50 55 60  
Asn Phe Leu Ser Ser Pro Leu Phe Leu Pro Thr Asn Gly Ile Ile Met  
65 70 75 80

Leu Ala

<210> 1505  
<211> 82  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (63)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1505  
Glu Gly Cys Ala Ala Ala Met Ala Leu Arg Met Leu Trp Ala Gly Gln  
1 5 10 15  
Ala Lys Gly Ile Leu Gly Gly Trp Gly Ile Ile Cys Leu Val Met Ser  
20 25 30  
Leu Leu Leu Gln His Pro Gly Val Tyr Ser Lys Cys Tyr Phe Gln Ala  
35 40 45

Gln Ala Pro Cys His Tyr Glu Gly Lys Tyr Phe Thr Leu Gly Xaa Ser  
 50 55 60

Trp Leu Arg Lys Asp Cys Phe His Cys Thr Cys Leu His Pro Val Ala  
 65 70 75 80

Trp Ala

<210> 1506

<211> 419

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (404)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (405)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1506

Ala Arg Val Asp Arg Glu Thr Arg Ala Leu Ala Asp Ser His Phe Arg  
 1 5 10 15

Gly Leu Gly Val Asp Val Pro Gly Val Gly Gln Ala Pro Gly Arg Val  
 20 25 30

Ala Phe Val Ser Glu Pro Gly Ala Phe Ser Tyr Ala Asp Phe Val Arg  
 35 40 45

Gly Phe Leu Leu Pro Asn Leu Pro Cys Val Phe Ser Ser Ala Phe Thr  
 50 55 60

Gln Gly Trp Gly Ser Arg Arg Arg Trp Val Thr Pro Ala Gly Arg Pro  
 65 70 75 80

Asp Phe Asp His Leu Leu Arg Thr Tyr Gly Asp Val Val Val Pro Val  
 85 90 95

Ala Asn Cys Gly Val Gln Glu Tyr Asn Ser Asn Pro Lys Glu His Met  
 100 105 110

Thr Leu Arg Asp Tyr Ile Thr Tyr Trp Lys Glu Tyr Ile Gln Ala Gly  
 115 120 125

Tyr Ser Ser Pro Arg Gly Cys Leu Tyr Leu Lys Asp Trp His Leu Cys  
130 135 140

Arg Asp Phe Pro Val Glu Asp Val Phe Thr Leu Pro Val Tyr Phe Ser  
145 150 155 160

Ser Asp Trp Leu Asn Glu Phe Trp Asp Ala Leu Asp Val Asp Asp Tyr  
165 170 175

Arg Phe Val Tyr Ala Gly Pro Ala Gly Ser Trp Ser Pro Phe His Ala  
180 185 190

Asp Ile Phe Arg Ser Phe Ser Trp Ser Val Asn Val Cys Gly Arg Lys  
195 200 205

Lys Trp Leu Leu Phe Pro Pro Gly Gln Glu Glu Ala Leu Arg Asp Arg  
210 215 220

His Gly Asn Leu Pro Tyr Asp Val Thr Ser Pro Ala Leu Cys Asp Thr  
225 230 235 240

His Leu His Pro Arg Asn Gln Leu Ala Gly Pro Pro Leu Glu Ile Thr  
245 250 255

Gln Glu Ala Gly Glu Met Val Phe Val Pro Ser Gly Trp His His Gln  
260 265 270

Val His Asn Leu Asp Asp Thr Ile Ser Ile Asn His Asn Trp Val Asn  
275 280 285

Gly Phe Asn Leu Ala Asn Met Trp Arg Phe Leu Gln Gln Glu Leu Cys  
290 295 300

Ala Val Gln Glu Glu Val Ser Glu Trp Arg Asp Ser Met Pro Asp Trp  
305 310 315 320

His His His Cys Gln Val Ile Met Arg Ser Cys Ser Gly Ile Asn Phe  
325 330 335

Glu Glu Phe Tyr His Phe Leu Lys Val Ile Ala Glu Lys Arg Leu Leu  
340 345 350

Val Leu Arg Glu Ala Ala Ala Glu Asp Gly Ala Gly Leu Gly Phe Glu  
355 360 365

Gln Ala Ala Phe Asp Val Gly Arg Ile Thr Glu Val Leu Ala Ser Leu  
370 375 380

Val Ala His Pro Asp Phe Gln Arg Val Asp Thr Ser Ala Phe Ser Pro  
385 390 395 400

Gln Pro Lys Xaa Xaa Leu Gln Gln Leu Arg Glu Ala Val Asp Ala Ala  
 405 410 415

Ala Ala Pro

<210> 1507

<211> 220

<212> PRT

<213> Homo sapiens

<400> 1507

Pro Arg Val Arg Ser Gly Arg Thr Ile Met Gln Ser Ala Met Phe Leu  
 1 5 10 15

Ala Val Gln His Asp Cys Arg Pro Met Asp Lys Ser Ala Gly Ser Gly  
 20 25 30

His Lys Ser Glu Glu Lys Arg Glu Lys Met Lys Arg Thr Leu Leu Lys  
 35 40 45

Asp Trp Lys Thr Arg Leu Ser Tyr Phe Leu Gln Asn Ser Ser Thr Pro  
 50 55 60

Gly Lys Pro Lys Thr Gly Lys Lys Ser Lys Gln Gln Ala Phe Ile Lys  
 65 70 75 80

Pro Ser Pro Glu Glu Ala Gln Leu Trp Ser Glu Ala Phe Asp Glu Leu  
 85 90 95

Leu Ala Ser Lys Tyr Gly Leu Ala Ala Phe Arg Ala Phe Leu Lys Ser  
 100 105 110

Glu Phe Cys Glu Glu Asn Ile Glu Phe Trp Leu Ala Cys Glu Asp Phe  
 115 120 125

Lys Lys Thr Lys Ser Pro Gln Lys Leu Ser Ser Lys Ala Arg Lys Ile  
 130 135 140

Tyr Thr Asp Phe Ile Glu Lys Glu Ala Pro Lys Glu Ile Asn Ile Asp  
 145 150 155 160

Phe Gln Thr Lys Thr Leu Ile Ala Gln Asn Ile Gln Glu Ala Thr Ser  
 165 170 175

Gly Cys Phe Thr Thr Ala Gln Lys Arg Val Tyr Ser Leu Met Glu Asn  
 180 185 190

Asn Ser Tyr Pro Arg Phe Leu Glu Ser Glu Phe Tyr Gln Asp Leu Cys



195

200

205

Lys Lys Pro Gln Ile Thr Thr Glu Pro His Ala Thr  
210 215 220

&lt;210&gt; 1508

&lt;211&gt; 339

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1508

Phe Gly Thr Arg Arg Ser Gly Cys Pro Ala Arg Gly His Ser Glu Pro  
1 5 10 15

Gly Gly Arg Glu Glu Gly Gly Met Pro Gln Thr Val Ile Leu Pro Gly  
20 25 30

Pro Ala Pro Trp Gly Phe Arg Leu Ser Gly Gly Ile Asp Phe Asn Gln  
35 40 45

Pro Leu Val Ile Thr Arg Ile Thr Pro Gly Ser Lys Ala Ala Ala Ala  
50 55 60

Asn Leu Cys Pro Gly Asp Val Ile Leu Ala Ile Asp Gly Phe Gly Thr  
65 70 75 80

Glu Ser Met Thr His Ala Asp Ala Gln Asp Arg Ile Lys Ala Ala Ala  
85 90 95

His Gln Leu Cys Leu Lys Ile Asp Arg Gly Glu Thr His Leu Trp Ser  
100 105 110

Pro Gln Val Ser Glu Asp Gly Lys Ala His Pro Phe Lys Ile Asn Leu  
115 120 125

Glu Ser Glu Pro Gln Glu Phe Lys Pro Ile Gly Thr Ala His Asn Arg  
130 135 140

Arg Ala Gln Pro Phe Val Ala Ala Ala Asn Ile Asp Asp Lys Arg Gln  
145 150 155 160

Val Val Ser Ala Ser Tyr Asn Ser Pro Ile Gly Leu Tyr Ser Thr Ser  
165 170 175

Asn Ile Gln Asp Ala Leu His Gly Gln Leu Arg Gly Leu Ile Pro Ser  
180 185 190

Ser Pro Gln Asn Glu Pro Thr Ala Ser Val Pro Pro Glu Ser Asp Val  
195 200 205

Tyr Arg Met Leu His Asp Asn Arg Asn Glu Pro Thr Gln Pro Arg Gln  
 210 215 220

Ser Gly Ser Phe Arg Val Leu Gln Gly Met Val Asp Asp Gly Ser Asp  
 225 230 235 240

Asp Arg Pro Ala Gly Thr Arg Ser Val Arg Ala Pro Val Thr Lys Val  
 245 250 255

His Gly Gly Ser Gly Gly Ala Gln Arg Met Pro Leu Cys Asp Lys Cys  
 260 265 270

Gly Ser Gly Ile Val Gly Ala Val Val Lys Ala Arg Asp Lys Tyr Arg  
 275 280 285

His Pro Glu Cys Phe Val Cys Ala Asp Cys Asn Leu Asn Leu Lys Gln  
 290 295 300

Lys Gly Tyr Phe Phe Ile Glu Gly Glu Leu Tyr Cys Glu Thr His Ala  
 305 310 315 320

Arg Ala Arg Thr Lys Pro Pro Glu Gly Tyr Asp Thr Val Thr Leu Tyr  
 325 330 335

Pro Lys Ala

<210> 1509

<211> 388

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (226)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1509

Leu Gly Arg Val Ser Met Ser Leu Gly Trp Leu Glu Arg Pro Pro Ala  
 1 5 10 15

Leu Ser Arg Ala Ala Gly Asp Gly Ala Arg Arg Leu Ser Gly Ser Arg  
 20 25 30

Arg Gly Asp Val Trp Leu Thr Ser Ser Ala Ala Gly Leu Leu Arg Ser  
 35 40 45

Val Ala Gly Gly Ser Trp Cys Gly Gly Gln Leu Arg Ala Arg Gly Gly

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325                      330                      335  
 Lys Asn Gln Met Leu Ile Glu Glu Glu Val Gln Lys Leu Lys Arg Tyr  
                     340                      345                      350  
 Lys Ile Glu Asn Ile Arg Arg Lys His Asn Tyr Leu Pro Phe Ile Met  
                     355                      360                      365  
 Glu Leu Leu Lys Thr Leu Ala Glu His Gln Gln Leu Ile Pro Leu Val  
                     370                      375                      380  
 Glu Lys Gly Lys  
 385

<210> 1510  
 <211> 260  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (249)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1510  
 Arg Gly Gln Val Pro Ser Ser Ser Leu Ala His Gly Cys Val Arg Pro  
   1                    5                    10                    15  
 Gly Glu Pro Ser Trp Pro Gly Glu Pro Ser Trp Pro Ala Arg Val Leu  
                     20                    25                    30  
 Arg Arg Arg Gln Val Leu Tyr Pro Arg Phe Gln Ser Arg Gly Pro Gln  
                     35                    40                    45  
 Gly Val Glu Asp Gly Asp Arg Pro Gln Pro Ser Ser Lys Thr Pro Arg  
                     50                    55                    60  
 Ile Pro Lys Ile Tyr Thr Lys Thr Gly Asp Lys Gly Phe Ser Ser Thr  
                     65                    70                    75                    80  
 Phe Thr Gly Glu Arg Arg Pro Lys Asp Asp Gln Val Phe Glu Ala Val  
                     85                    90                    95  
 Gly Thr Thr Asp Glu Leu Ser Ser Ala Ile Gly Phe Ala Leu Glu Leu  
                     100                    105                    110  
 Val Thr Glu Lys Gly His Thr Phe Ala Glu Glu Leu Gln Lys Ile Gln  
                     115                    120                    125

Cys Thr Leu Gln Asp Val Gly Ser Ala Leu Ala Thr Pro Cys Ser Ser  
 130 135 140  
 Ala Arg Glu Ala His Leu Lys Tyr Thr Thr Phe Lys Ala Gly Pro Ile  
 145 150 155 160  
 Leu Glu Leu Glu Gln Trp Ile Asp Lys Tyr Thr Ser Gln Leu Pro Pro  
 165 170 175  
 Leu Thr Ala Phe Ile Leu Pro Ser Gly Gly Lys Ile Ser Ser Ala Leu  
 180 185 190  
 His Phe Cys Arg Ala Val Cys Arg Arg Ala Glu Arg Arg Val Val Pro  
 195 200 205  
 Leu Val Gln Met Gly Glu Thr Asp Ala Asn Val Ala Lys Phe Leu Asn  
 210 215 220  
 Arg Leu Ser Asp Tyr Leu Phe Thr Leu Ala Arg Tyr Ala Ala Met Lys  
 225 230 235 240  
 Glu Gly Asn Gln Glu Lys Ile Tyr Xaa Lys Asn Asp Pro Ser Ala Glu  
 245 250 255  
 Ser Glu Gly Leu  
 260

&lt;210&gt; 1511

&lt;211&gt; 288

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (162)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1511

Gln His Phe His Phe Arg Lys Pro Thr Asp Val Leu Gln Thr Val Lys  
 1 5 10 15

Leu Leu Asp Leu Ser Ser Asn Gln Leu Ile Asp Glu Asn Gln Leu Tyr  
 20 25 30

Leu Ile Ala His Leu Pro Arg Leu Glu Gln Leu Ile Leu Ser Asp Thr  
 35 40 45

Gly Ile Ser Ser Leu His Phe Pro Asp Ala Gly Ile Gly Cys Lys Thr  
 50 55 60

Ser Met Phe Pro Ser Leu Lys Tyr Leu Val Val Asn Asp Asn Gln Ile  
 65 70 75 80  
 Ser Gln Trp Ser Phe Phe Asn Glu Leu Glu Lys Leu Pro Ser Leu Arg  
 85 90 95  
 Ala Leu Ser Cys Leu Arg Asn Pro Leu Thr Lys Glu Asp Lys Glu Ala  
 100 105 110  
 Glu Thr Ala Arg Leu Leu Ile Ile Ala Ser Ile Gly Gln Leu Lys Thr  
 115 120 125  
 Leu Asn Lys Cys Glu Ile Leu Pro Glu Glu Arg Arg Arg Ala Glu Leu  
 130 135 140  
 Asp Tyr Arg Lys Ala Phe Gly Asn Glu Trp Lys Gln Ala Gly Gly His  
 145 150 155 160  
 Lys Xaa Pro Glu Lys Asn Arg Leu Ser Glu Glu Phe Leu Thr Ala His  
 165 170 175  
 Pro Arg Tyr Gln Phe Leu Cys Leu Lys Tyr Gly Ala Pro Glu Asp Trp  
 180 185 190  
 Glu Leu Lys Thr Gln Gln Pro Leu Met Leu Lys Asn Gln Leu Leu Thr  
 195 200 205  
 Leu Lys Ile Lys Tyr Pro His Gln Leu Asp Gln Lys Val Leu Glu Lys  
 210 215 220  
 Gln Leu Pro Gly Ser Met Thr Ile Gln Lys Val Lys Gly Leu Leu Ser  
 225 230 235 240  
 Arg Leu Leu Lys Val Pro Val Ser Asp Leu Leu Leu Ser Tyr Glu Ser  
 245 250 255  
 Pro Lys Lys Pro Gly Arg Glu Ile Glu Leu Glu Asn Asp Leu Lys Ser  
 260 265 270  
 Leu Gln Phe Tyr Ser Val Glu Asn Gly Asp Cys Leu Leu Val Arg Trp  
 275 280 285

&lt;210&gt; 1512

&lt;211&gt; 123

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (73)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1512

Lys Cys Pro Arg Glu Pro Leu Val His Arg Arg Phe Val Ser Thr Leu  
1 5 10 15

Pro Ile Phe Thr Ala Leu Ala Leu Gln Ala Trp Gly Ser Ile Cys Ser  
20 25 30

Ser His Val Lys Ser Gly Pro Ala Phe Leu Asn Ser Val Gln Ala Asp  
35 40 45

Leu Phe Ser Cys Thr Gly Ile Ser Tyr Gln Pro Asn Ile Cys Ile Glu  
50 55 60

Gln Arg Gly Leu Cys Ala Pro Pro Xaa Met Ala Ala Met Met Ala Ala  
65 70 75 80

Val Ile His Ala His Leu Gln Thr Ser Gln Ser Gly Ser Glu Met Ser  
85 90 95

Thr Asn Ile Cys Gly Arg Lys Gly Tyr Thr Asp His Pro Val Val Leu  
100 105 110

Gln Leu Tyr Arg Ala Arg Lys Gly Cys Gly Lys  
115 120

<210> 1513

<211> 108

<212> PRT

<213> Homo sapiens

<400> 1513

Ala Asp Gly Gly Trp Gly Glu Asp Phe Glu Ser Cys Glu Glu Arg Arg  
1 5 10 15

Tyr Val Gln Ser Ala Gln Ser Gln Ile His Asn Thr Cys Trp Ala Met  
20 25 30

Met Gly Leu Met Ala Val Arg His Pro Asp Ile Glu Ala Gln Glu Arg  
35 40 45

Gly Val Arg Cys Leu Leu Glu Lys Gln Leu Pro Asn Gly Asp Trp Pro  
50 55 60

Gln Glu Asn Ile Ala Gly Val Phe Asn Lys Ser Cys Ala Ile Ser Tyr  
65 70 75 80

Thr Ser Tyr Arg Asn Ile Phe Pro Ile Trp Ala Leu Gly Arg Phe Ser  
85 90 95

Gln Leu Tyr Pro Glu Arg Ala Leu Ala Gly His Pro  
100 105

<210> 1514

<211> 33

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1514

Ser Trp Xaa Ser Thr Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro  
1 5 10 15

Pro Gly Cys Arg Asn Ser Ala Arg Val Ser Leu Phe Val Cys Phe Phe  
20 25 30

Leu

<210> 1515

<211> 479

<212> PRT

<213> Homo sapiens

<400> 1515

Gly Thr Arg Arg Pro Ser Ser Ser Val Arg Ser Gly Ser Trp Ser Arg  
1 5 10 15

Leu Pro Gly Tyr Arg Gly Ala Ser Met Thr Thr Met Ala Ala Ala Thr  
20 25 30

Leu Leu Arg Ala Thr Pro His Phe Ser Gly Leu Ala Ala Gly Arg Thr  
35 40 45

Phe Leu Leu Gln Gly Leu Leu Arg Leu Leu Lys Ala Pro Ala Leu Pro  
50 55 60



Leu Leu Cys Arg Gly Leu Ala Val Glu Ala Lys Lys Thr Tyr Val Arg  
65 70 75 80

Asp Lys Pro His Val Asn Val Gly Thr Ile Gly His Val Asp His Gly  
85 90 95

Lys Thr Thr Leu Thr Ala Ala Ile Thr Lys Ile Leu Ala Glu Gly Gly  
100 105 110

Gly Ala Lys Phe Lys Lys Tyr Glu Glu Ile Asp Asn Ala Pro Glu Glu  
115 120 125

Arg Ala Arg Gly Ile Thr Ile Asn Ala Ala His Val Glu Tyr Ser Thr  
130 135 140

Ala Ala Arg His Tyr Ala His Thr Asp Cys Pro Gly His Ala Asp Tyr  
145 150 155 160

Val Lys Asn Met Ile Thr Gly Thr Ala Pro Leu Asp Gly Cys Ile Leu  
165 170 175

Val Val Ala Ala Asn Asp Gly Pro Met Pro Gln Thr Arg Glu His Leu  
180 185 190

Leu Leu Ala Arg Gln Ile Gly Val Glu His Val Val Val Tyr Val Asn  
195 200 205

Lys Ala Asp Ala Val Gln Asp Ser Glu Met Val Glu Leu Val Glu Leu  
210 215 220

Glu Ile Arg Glu Leu Leu Thr Glu Phe Gly Tyr Lys Gly Glu Glu Thr  
225 230 235 240

Pro Val Ile Val Gly Ser Ala Leu Cys Ala Leu Glu Gly Arg Asp Pro  
245 250 255

Glu Leu Gly Leu Lys Ser Val Gln Lys Leu Leu Asp Ala Val Asp Thr  
260 265 270

Tyr Ile Pro Val Pro Ala Arg Asp Leu Glu Lys Pro Phe Leu Leu Pro  
275 280 285

Val Glu Ala Val Tyr Ser Val Pro Gly Arg Gly Thr Val Val Thr Gly  
290 295 300

Thr Leu Glu Arg Gly Ile Leu Lys Lys Gly Asp Glu Cys Glu Leu Leu  
305 310 315 320

Gly His Ser Lys Asn Ile Arg Thr Val Val Thr Gly Ile Glu Met Phe  
325 330 335

His Lys Ser Leu Glu Arg Ala Glu Ala Gly Asp Asn Leu Gly Ala Leu  
340 345 350

Val Arg Gly Leu Lys Arg Glu Asp Leu Arg Arg Gly Leu Val Met Val  
355 360 365

Lys Pro Gly Ser Ile Lys Pro His Gln Lys Val Glu Ala Gln Val Tyr  
370 375 380

Ile Leu Ser Lys Glu Glu Gly Gly Arg His Lys Pro Phe Val Ser His  
385 390 395 400

Phe Met Pro Val Met Phe Ser Leu Thr Trp Asp Met Ala Cys Arg Ile  
405 410 415

Ile Leu Pro Pro Glu Lys Glu Leu Ala Met Pro Gly Glu Asp Leu Lys  
420 425 430

Phe Asn Leu Ile Leu Arg Gln Pro Met Ile Leu Glu Lys Gly Gln Arg  
435 440 445

Phe Thr Leu Arg Asp Gly Asn Arg Thr Ile Gly Thr Gly Leu Val Thr  
450 455 460

Asn Thr Leu Ala Met Thr Glu Glu Glu Lys Asn Ile Lys Trp Gly  
465 470 475

<210> 1516

<211> 627

<212> PRT

<213> Homo sapiens

<400> 1516

Arg Gln Glu Leu Ile Trp Pro Leu Cys Ser Pro Pro Gln Gly Asp Arg  
1 5 10 15

Phe Leu Gln Lys Ser Trp Ile Phe Phe Arg Pro Val Met Ala Asp Lys  
20 25 30

Leu Thr Arg Ile Ala Ile Val Asn His Asp Lys Cys Lys Pro Lys Lys  
35 40 45

Cys Arg Gln Glu Cys Lys Lys Ser Cys Pro Val Val Arg Met Gly Lys  
50 55 60

Leu Cys Ile Glu Val Thr Pro Gln Ser Lys Ile Ala Trp Ile Ser Glu  
65 70 75 80

Thr Leu Cys Ile Gly Cys Gly Ile Cys Ile Lys Lys Cys Pro Phe Gly  
85 90 95

Ala Leu Ser Ile Val Asn Leu Pro Ser Asn Leu Glu Lys Glu Thr Thr  
100 105 110

His Arg Tyr Cys Ala Asn Ala Phe Lys Leu His Arg Leu Pro Ile Pro  
115 120 125

Arg Pro Gly Glu Val Leu Gly Leu Val Gly Thr Asn Gly Ile Gly Lys  
130 135 140

Ser Thr Ala Leu Lys Ile Leu Ala Gly Lys Gln Lys Pro Asn Leu Gly  
145 150 155 160

Lys Tyr Asp Asp Pro Pro Asp Trp Gln Glu Ile Leu Thr Tyr Phe Arg  
165 170 175

Gly Ser Glu Leu Gln Asn Tyr Phe Thr Lys Ile Leu Glu Asp Asp Leu  
180 185 190

Lys Ala Ile Ile Lys Pro Gln Tyr Val Asp Gln Ile Pro Lys Ala Ala  
195 200 205

Lys Gly Thr Val Gly Ser Ile Leu Asp Arg Lys Asp Glu Thr Lys Thr  
210 215 220

Gln Ala Ile Val Cys Gln Gln Leu Asp Leu Thr His Leu Lys Glu Arg  
225 230 235 240

Asn Val Glu Asp Leu Ser Gly Gly Glu Leu Gln Arg Phe Ala Cys Ala  
245 250 255

Val Val Cys Ile Gln Lys Ala Asp Ile Phe Met Phe Asp Glu Pro Ser  
260 265 270

Ser Tyr Leu Asp Val Lys Gln Arg Leu Lys Ala Ala Ile Thr Ile Arg  
275 280 285

Ser Leu Ile Asn Pro Asp Arg Tyr Ile Ile Val Val Glu His Asp Leu  
290 295 300

Ser Val Leu Asp Tyr Leu Ser Asp Phe Ile Cys Cys Leu Tyr Gly Val  
305 310 315 320

Pro Ser Ala Tyr Gly Val Val Thr Met Pro Phe Ser Val Arg Glu Gly  
325 330 335

Ile Asn Ile Phe Leu Asp Gly Tyr Val Pro Thr Glu Asn Leu Arg Phe  
340 345 350

Arg Asp Ala Ser Leu Val Phe Lys Val Ala Glu Thr Ala Asn Glu Glu  
355 360 365

Glu Val Lys Lys Met Cys Met Tyr Lys Tyr Pro Gly Met Lys Lys Lys  
370 375 380

Met Gly Glu Phe Glu Leu Ala Ile Val Ala Gly Glu Phe Thr Asp Ser  
385 390 395 400

Glu Ile Met Val Met Leu Gly Glu Asn Gly Thr Gly Lys Thr Thr Phe  
405 410 415

Ile Arg Met Leu Ala Gly Arg Leu Lys Pro Asp Glu Gly Gly Glu Val  
420 425 430

Pro Val Leu Asn Val Ser Tyr Lys Pro Gln Lys Ile Ser Pro Lys Ser  
435 440 445

Thr Gly Ser Val Arg Gln Leu Leu His Glu Lys Ile Arg Asp Ala Tyr  
450 455 460

Thr His Pro Gln Phe Val Thr Asp Val Met Lys Pro Leu Gln Ile Glu  
465 470 475 480

Asn Ile Ile Asp Gln Glu Val Gln Thr Leu Ser Gly Gly Glu Leu Gln  
485 490 495

Arg Val Ala Leu Ala Leu Cys Leu Gly Lys Pro Ala Asp Val Tyr Leu  
500 505 510

Ile Asp Glu Pro Ser Ala Tyr Leu Asp Ser Glu Gln Arg Leu Met Ala  
515 520 525

Ala Arg Val Val Lys Arg Phe Ile Leu His Ala Lys Lys Thr Ala Phe  
530 535 540

Val Val Glu His Asp Phe Ile Met Ala Thr Tyr Leu Ala Asp Arg Val  
545 550 555 560

Ile Val Phe Asp Gly Val Pro Ser Lys Asn Thr Val Ala Asn Ser Pro  
565 570 575

Gln Thr Leu Leu Ala Gly Met Asn Lys Phe Leu Ser Gln Leu Glu Ile  
580 585 590

Thr Phe Arg Arg Asp Pro Asn Asn Tyr Arg Pro Arg Ile Asn Lys Leu  
595 600 605

Asn Ser Ile Lys Asp Val Glu Gln Lys Lys Ser Gly Asn Tyr Phe Phe  
610 615 620

Leu Asp Asp  
625

<210> 1517

<211> 104

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (93)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (94)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1517

Ala Pro Gln Pro Pro Pro Thr Gly Gln Ser Asp Tyr Thr Lys Ala Trp  
1 5 10 15

Glu Glu Tyr Tyr Lys Lys Ile Gly Gln Gln Pro Gln Gln Pro Gly Ala  
20 25 30

Pro Pro Gln Gln Asp Tyr Thr Lys Ala Trp Glu Glu Tyr Tyr Lys Lys  
35 40 45

Gln Ala Gln Val Ala Thr Gly Gly Val Gln Glu Leu Pro Gln Ala Pro  
50 55 60

Ser Gln Thr Thr Val Pro Pro Gly Glu Tyr Tyr Arg Gln Gln Ala Ala  
65 70 75 80

Tyr Tyr Gly Gln Thr Pro Gly Pro Gly Gly Pro Gln Xaa Xaa Pro Thr  
85 90 95

Gln Gln Gly Gln Gln Gln Ala Gln  
100

<210> 1518

<211> 149

<212> PRT

<213> Homo sapiens

<400> 1518

His Met Thr Thr Val Ser Pro Asp Cys Val Glu Cys Met Ala Cys Ser

1                      5                      10                      15  
 Asp Asn Thr Val Arg Ala Gly Leu Thr Pro Lys Phe Ile Asp Val Pro  
                     20                      25                      30  
 Thr Leu Cys Glu Met Leu Ser Tyr Thr Pro Ser Ser Ser Lys Asp Arg  
                     35                      40                      45  
 Leu Phe Leu Pro Thr Arg Ser Gln Glu Asp Pro Tyr Leu Ser Ile Tyr  
                     50                      55                      60  
 Asp Pro Pro Val Pro Asp Phe Thr Ile Met Lys Thr Glu Val Pro Gly  
                     65                      70                      75                      80  
 Ser Val Thr Glu Tyr Lys Val Leu Ala Leu Asp Ser Ala Ser Ile Leu  
                     85                      90                      95  
 Leu Met Val Gln Gly Thr Val Ile Ala Ser Thr Pro Thr Thr Gln Thr  
                     100                      105                      110  
 Pro Ile Pro Leu Gln Arg Gly Gly Val Leu Phe Ile Gly Ala Asn Glu  
                     115                      120                      125  
 Ser Val Ser Leu Lys Leu Thr Glu Pro Lys Asp Leu Leu Ile Phe Arg  
                     130                      135                      140  
 Ala Cys Cys Leu Leu  
 145

&lt;210&gt; 1519

&lt;211&gt; 616

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (262)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1519

Ser Trp Gln Val Gln Gly Pro Pro Pro Arg Glu Xaa Cys Pro Ser Cys  
 1                      5                      10                      15

Thr Gln Ser Ala Ile Arg Gly Ser Cys Thr Leu Leu Leu Arg Ala Gly

20	25	30
Glu Asp Ser Ala Asp Gln Gly Arg Gly Gln Gln Gln His Phe His Phe 35 40 45		
His Thr Ser Ile Phe Leu Arg Gly Pro Pro Gly Ser Ser Pro Gln Pro 50 55 60		
Ala Pro Leu Arg Leu Arg Asp Trp Ala Leu Cys Leu Gly Leu His Asn 65 70 75 80		
Phe Val Ser Pro Asn Trp Leu Ser Arg Thr Tyr Ser Ser His Val Ser 85 90 95		
Trp Ile Thr Gly Gln Ala Met Glu Ile Gly Ser Ala Ala Leu Thr Ile 100 105 110		
Leu Val Glu Cys Trp Asp Gly His Leu Thr Pro Pro Glu Val Ala Ser 115 120 125		
Leu Ala Asp Arg Ala Ser Arg Ala Arg Asp Ser Asn Met Val Arg Ala 130 135 140		
Ala Ala Glu Leu Ala Leu Ser Cys Leu Pro His Ala His Ala Leu Asn 145 150 155 160		
Pro Asn Glu Ile Gln Arg Ala Leu Val Gln Cys Lys Glu Gln Asp Asn 165 170 175		
Leu Met Leu Glu Lys Ala Cys Met Ala Val Glu Glu Ala Ala Lys Gly 180 185 190		
Gly Gly Val Tyr Pro Glu Val Leu Phe Glu Val Ala His Gln Trp Phe 195 200 205		
Trp Leu Tyr Glu Gln Thr Ala Gly Gly Ser Ser Thr Ala Arg Glu Gly 210 215 220		
Ala Thr Ser Cys Ser Ala Ser Gly Ile Arg Ala Gly Gly Glu Ala Gly 225 230 235 240		
Arg Gly Met Pro Glu Gly Arg Gly Gly Pro Gly Thr Glu Pro Val Thr 245 250 255		
Val Ala Ala Ala Gln Xaa Thr Ala Ala Ala Thr Val Val Pro Val Ile 260 265 270		
Ser Val Gly Ser Ser Leu Tyr Pro Gly Pro Gly Leu Gly His Gly His 275 280 285		
Ser Pro Gly Leu His Pro Tyr Thr Ala Leu Gln Pro His Leu Pro Cys		

290 295 300

Ser Pro Gln Tyr Leu Thr His Pro Ala His Pro Ala His Pro Met Pro  
305 310 315 320

His Met Pro Arg Pro Ala Val Phe Pro Val Pro Ser Ser Ala Tyr Pro  
325 330 335

Gln Gly Val His Pro Ala Phe Leu Gly Ala Gln Tyr Pro Tyr Ser Val  
340 345 350

Thr Pro Pro Ser Leu Ala Ala Thr Ala Val Ser Phe Pro Val Pro Ser  
355 360 365

Met Ala Pro Ile Thr Val His Pro Tyr His Thr Glu Pro Gly Leu Pro  
370 375 380

Leu Pro Thr Ser Val Ala Leu Ser Ser Val His Pro Ala Ser Thr Phe  
385 390 395 400

Pro Ala Ile Gln Gly Ala Ser Leu Pro Ala Leu Thr Thr Gln Pro Ser  
405 410 415

Pro Leu Val Ser Gly Gly Phe Pro Pro Pro Glu Glu Glu Thr His Ser  
420 425 430

Gln Pro Val Asn Pro His Ser Leu His His Leu His Ala Ala Tyr Arg  
435 440 445

Val Gly Met Leu Ala Leu Glu Met Leu Gly Arg Arg Ala His Asn Asp  
450 455 460

His Pro Asn Asn Phe Ser Arg Ser Pro Pro Tyr Thr Asp Asp Val Lys  
465 470 475 480

Trp Leu Leu Gly Leu Ala Ala Lys Leu Gly Val Asn Tyr Val His Gln  
485 490 495

Phe Cys Val Gly Ala Ala Lys Gly Val Leu Ser Pro Phe Val Leu Gln  
500 505 510

Glu Ile Val Met Glu Thr Leu Gln Arg Leu Ser Pro Ala His Ala His  
515 520 525

Asn His Leu Arg Ala Pro Ala Phe His Gln Leu Val Gln Arg Cys Gln  
530 535 540

Gln Ala Tyr Met Gln Tyr Ile His His Arg Leu Ile His Leu Thr Pro  
545 550 555 560

Ala Asp Tyr Asp Asp Phe Val Asn Ala Ile Arg Ser Ala Arg Ser Ala



565

570

575

Phe Cys Leu Thr Pro Met Gly Met Met Gln Phe Asn Asp Ile Leu Gln  
580 585 590

Asn Leu Lys Arg Ser Lys Gln Thr Lys Glu Leu Trp Gln Arg Val Ser  
595 600 605

Leu Glu Met Ala Thr Phe Ser Pro  
610 615

&lt;210&gt; 1520

&lt;211&gt; 159

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1520

Glu Gly Ser Arg Pro Pro Leu Cys Arg Ser Cys Ile Ser Ala Glu Ser  
1 5 10 15

Val Phe Gln Pro Gln Leu Val Ala Pro Leu Ala Pro Leu Leu Pro Asp  
20 25 30

Gly His Val Phe Val Thr Leu Glu Asn Lys Gln Pro His Thr His Phe  
35 40 45

Phe Phe Ser Phe Lys Thr Val Thr Trp Lys Tyr Glu Lys Ala Arg Arg  
50 55 60

Arg Ser Lys Gly Cys Phe Leu Glu Trp Leu Arg Cys Cys Pro Ala Val  
65 70 75 80

Val Ile Val Phe Ser Thr Gly Leu Phe Pro Phe Ile Ser Cys Gly Thr  
85 90 95

Glu Ser Leu Leu Pro Pro Leu Leu Gly Ser Pro Gly Gly Pro Trp Pro  
100 105 110

Pro Phe Arg Leu Ser Lys Lys Pro Thr Thr Leu Glu Ile Phe Phe Leu  
115 120 125

Glu Phe Arg Cys Phe Leu Leu Leu Pro Leu Asp Lys Lys Gln Leu Lys  
130 135 140

Arg Pro Tyr Leu Arg Asp Glu Lys Asn Met His Ile Asn Ser Ile  
145 150 155

&lt;210&gt; 1521

&lt;211&gt; 129

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1521

Glu Trp Ala Glu Cys Arg Gly Gln Leu Val Gln Xaa Ser Arg Pro Glu  
 1 5 10 15

Val Ser Ala Gly Ser Leu Leu Leu Pro Ala Pro Gln Ala Glu Asp His  
 20 25 30

Ser Ser Arg Ile Leu Tyr Pro Arg Pro Lys Ser Leu Leu Pro Lys Met  
 35 40 45

Met Asn Ala Asp Met Asp Ala Val Asp Ala Glu Asn Gln Val Glu Leu  
 50 55 60

Glu Glu Lys Thr Arg Leu Ile Asn Gln Val Leu Glu Leu Gln His Thr  
 65 70 75 80

Leu Glu Asp Leu Ser Ala Arg Val Asp Ala Val Lys Glu Glu Asn Leu  
 85 90 95

Lys Leu Lys Ser Glu Asn Gln Val Leu Gly Gln Tyr Ile Glu Asn Leu  
 100 105 110

Met Ser Ala Ser Ser Val Phe Gln Thr Thr Asp Thr Lys Ser Lys Arg  
 115 120 125

Lys

&lt;210&gt; 1522

&lt;211&gt; 109

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (58)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (80)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1522

Ala Gly Thr Glu Pro Gly Val Lys Cys Ser Ala Lys Val His Asp Pro  
1 5 10 15

Leu Arg Ser His Trp Ala Asp Leu Thr Ser Asp Ser Leu Val Val Gln  
20 25 30

Met Pro Cys Ala Ala Phe Pro Glu Ala Ile Gly Gly Leu Pro Ala Ala  
35 40 45

Glu Ile Tyr Ala Gly His Pro Leu Asn Xaa Cys His Ser Lys Gly Gly  
50 55 60

Pro Arg Cys Ser Ser Xaa Ser Phe Thr Cys Gly Gly Val Gly Glu Xaa  
65 70 75 80

Ala Val Ser Glu Met Gln Val Pro Arg Ser His Pro Gly Leu Leu Lys  
85 90 95

Gly Cys Gly Ile Cys Val Ser Asp Ala Tyr Tyr Asn Met  
100 105

<210> 1523

<211> 53

<212> PRT

<213> Homo sapiens

<400> 1523

Gly Thr Ser Ser Cys Leu Ser Leu Pro Glu Tyr Trp Asp Tyr Arg Leu  
1 5 10 15

Phe Leu Phe Lys His Lys Ser Phe Lys Leu Val Leu Thr Leu Tyr Ser  
20 25 30

Ala Leu Asp Cys Phe Ser Phe Cys Ser Val Ile Met Ser Leu Val Gly  
35 40 45

Asp Ile Leu His Arg  
50

<210> 1524  
 <211> 111  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (107)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1524  
 Ile Leu Asn Val Lys Ile Ile Asp Leu Asp Ile Glu Ser Ile Ser Asp  
           1                  5                  10                  15  
 Ser Arg Asp Thr Pro Ile Cys Leu Lys Gln Pro Lys Met Tyr Trp Leu  
                   20                  25                  30  
 Trp Asn His Val Leu Asp Arg Phe Leu Arg Pro Val Ser Ser Asn Leu  
                   35                  40                  45  
 Asp Thr Val Phe Lys Gly Gly Leu Leu Thr Cys Thr Val Gly Gln Ile  
           50                  55                  60  
 Ile Gln Ile Tyr Leu Arg Leu Gly Lys Lys Val Ile Cys Asp Phe Ala  
           65                  70                  75                  80  
 Gly Arg Ala Phe Ala Lys Trp Ser Thr Gly Ser Lys Arg Val Phe Leu  
                   85                  90                  95  
 Glu Arg Ala Ile Leu Ser Asn Glu Val Ser Xaa Arg Thr Leu Gly  
                   100                  105                  110

<210> 1525  
 <211> 253  
 <212> PRT  
 <213> Homo sapiens

<400> 1525  
 Leu Ser Gln Arg Gln Asp Gln Val Pro Arg Leu Pro Val Gln Lys Ser  
           1                  5                  10                  15  
 Arg Gln Glu Ser Pro Arg Ala Glu Glu Asn Pro Lys Trp Arg Glu Gly  
                   20                  25                  30  
 Lys Lys Glu Thr Ser Glu Ser Ser Val Gln Lys Ala Gly Arg Ala Ala  
           35                  40                  45

Ala Ala Gln Ala Gly Ala Ala Ala Ser Arg Val Pro Gly Leu Ser Gly  
 50 55 60  
 Ser Asn Leu Ala Pro Cys Asn Lys Gly Arg Leu Ser Ala Arg Glu Asp  
 65 70 75 80  
 Val Ser Asn Ser Lys Met Gln Ala Gln Gln Tyr Gln Gln Gln Arg Arg  
 85 90 95  
 Lys Phe Ala Ala Ala Phe Leu Ala Phe Ile Phe Ile Leu Ala Ala Val  
 100 105 110  
 Asp Thr Ala Glu Ala Gly Lys Lys Glu Lys Pro Glu Lys Lys Val Lys  
 115 120 125  
 Lys Ser Asp Cys Gly Glu Trp Gln Trp Ser Val Cys Val Pro Thr Ser  
 130 135 140  
 Gly Asp Cys Gly Leu Gly Thr Arg Glu Gly Thr Arg Thr Gly Ala Glu  
 145 150 155 160  
 Cys Lys Gln Thr Met Lys Thr Gln Arg Cys Lys Ile Pro Cys Asn Trp  
 165 170 175  
 Lys Lys Gln Phe Gly Ala Glu Cys Lys Tyr Gln Phe Gln Ala Trp Gly  
 180 185 190  
 Glu Cys Asp Leu Asn Thr Ala Leu Lys Thr Arg Thr Gly Ser Leu Lys  
 195 200 205  
 Arg Ala Leu His Asn Ala Glu Cys Gln Lys Thr Val Thr Ile Ser Lys  
 210 215 220  
 Pro Cys Gly Lys Leu Thr Lys Pro Lys Pro Gln Ala Glu Ser Lys Lys  
 225 230 235 240  
 Lys Lys Lys Glu Gly Lys Lys Gln Glu Lys Met Leu Asp  
 245 250

&lt;210&gt; 1526

&lt;211&gt; 93

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1526

Pro Cys Thr Lys Arg Asn Gly Asp Cys Leu Tyr Pro Pro Arg Phe Ile  
 1 5 10 15

Ser Trp Pro Glu Val Ile Leu Ala Ser Arg Lys Gly Cys Thr Ser Ser

20                      25                      30  
 His His Gln Leu Gln Arg Met Ala Ala Ile Tyr Leu Ser Arg Gly Phe  
           35                      40                      45  
 Phe Ser Arg Glu Pro Ile Cys Pro Phe Glu Glu Lys Thr Lys Val Glu  
           50                      55                      60  
 Arg Met Val Glu Asp Tyr Leu Ala Ser Gly Tyr Gln Val Ser Arg Lys  
           65                      70                      75                      80  
 Arg Thr Val Val Lys Asn Asp Met Leu Ser Ser Asn Arg  
                           85                      90

<210> 1527  
 <211> 276  
 <212> PRT  
 <213> Homo sapiens

<400> 1527  
 Phe Phe Ile Asp His Asn Thr Lys Thr Thr Thr Trp Glu Asp Pro Arg  
   1                      5                      10                      15  
 Leu Lys Phe Pro Val His Met Arg Ser Lys Thr Ser Leu Asn Pro Asn  
           20                      25                      30  
 Asp Leu Gly Pro Leu Pro Pro Gly Trp Glu Glu Arg Ile His Leu Asp  
           35                      40                      45  
 Gly Arg Thr Phe Tyr Ile Asp His Asn Ser Lys Ile Thr Gln Trp Glu  
           50                      55                      60  
 Asp Pro Arg Leu Gln Asn Pro Ala Ile Thr Gly Pro Ala Val Pro Tyr  
           65                      70                      75                      80  
 Ser Arg Glu Phe Lys Gln Lys Tyr Asp Tyr Phe Arg Lys Lys Leu Lys  
                           85                      90                      95  
 Lys Pro Ala Asp Ile Pro Asn Arg Phe Glu Met Lys Leu His Arg Asn  
           100                      105                      110  
 Asn Ile Phe Glu Glu Ser Tyr Arg Arg Ile Met Ser Val Lys Arg Pro  
           115                      120                      125  
 Asp Val Leu Lys Ala Arg Leu Trp Ile Glu Phe Glu Ser Glu Lys Gly  
           130                      135                      140  
 Leu Asp Tyr Gly Gly Val Ala Arg Glu Trp Phe Phe Leu Leu Ser Lys  
           145                      150                      155                      160

Glu Met Phe Asn Pro Tyr Tyr Gly Leu Phe Glu Tyr Ser Ala Thr Asp  
165 170 175

Asn Tyr Thr Leu Gln Ile Asn Pro Asn Ser Gly Leu Cys Asn Glu Asp  
180 185 190

His Leu Ser Tyr Phe Thr Phe Ile Gly Arg Val Ala Gly Leu Ala Val  
195 200 205

Phe His Gly Lys Leu Leu Asp Gly Phe Phe Ile Arg Pro Phe Tyr Lys  
210 215 220

Met Met Leu Gly Lys Gln Ile Thr Leu Asn Asp Met Glu Ser Val Asp  
225 230 235 240

Ser Glu Tyr Tyr Asn Ser Leu Lys Trp Ile Leu Glu Asn Asp Pro Thr  
245 250 255

Glu Leu Asp Leu Met Phe Cys Ile Asp Glu Glu Asn Phe Gly Gln Thr  
260 265 270

Ser Thr Gly Arg  
275

<210> 1528

<211> 307

<212> PRT

<213> Homo sapiens

<400> 1528

Val Met Asp Leu Val Leu Arg Val Ala Asp Tyr Tyr Phe Phe Thr Pro  
1 5 10 15

Tyr Val Tyr Pro Ala Thr Trp Pro Glu Asp Asp Ile Phe Arg Gln Ala  
20 25 30

Ile Ser Leu Leu Ile Val Thr Asn Val Gly Ala Tyr Ile Leu Tyr Phe  
35 40 45

Phe Cys Ala Thr Leu Ser Tyr Tyr Phe Val Phe Asp His Ala Leu Met  
50 55 60

Lys His Pro Gln Phe Leu Lys Asn Gln Val Arg Arg Glu Ile Lys Phe  
65 70 75 80

Thr Val Gln Ala Leu Pro Trp Ile Ser Ile Leu Thr Val Ala Leu Phe  
85 90 95

Leu Leu Glu Ile Arg Gly Tyr Ser Lys Leu His Asp Asp Leu Gly Glu  
 100 105 110  
 Phe Pro Tyr Gly Leu Phe Glu Leu Val Val Ser Ile Ile Ser Phe Leu  
 115 120 125  
 Phe Phe Thr Asp Met Phe Ile Tyr Trp Ile His Arg Gly Leu His His  
 130 135 140  
 Arg Leu Val Tyr Lys Arg Leu His Lys Pro His His Ile Trp Lys Ile  
 145 150 155 160  
 Pro Thr Pro Phe Ala Ser His Ala Phe His Pro Ile Asp Gly Phe Leu  
 165 170 175  
 Gln Ser Leu Pro Tyr His Ile Tyr Pro Phe Ile Phe Pro Leu His Lys  
 180 185 190  
 Val Val Tyr Leu Ser Leu Tyr Ile Leu Val Asn Ile Trp Thr Ile Ser  
 195 200 205  
 Ile His Asp Gly Asp Phe Arg Val Pro Gln Ile Leu Gln Pro Phe Ile  
 210 215 220  
 Asn Gly Ser Ala His His Thr Asp His His Met Phe Phe Asp Tyr Asn  
 225 230 235 240  
 Tyr Gly Gln Tyr Phe Thr Leu Trp Asp Arg Ile Gly Gly Ser Phe Lys  
 245 250 255  
 Asn Pro Ser Ser Phe Glu Gly Lys Gly Pro Leu Ser Tyr Val Lys Glu  
 260 265 270  
 Met Thr Glu Gly Lys Arg Thr Ala Ile Gln Glu Met Ala Val Arg Met  
 275 280 285  
 Lys Asn Tyr Ser Met Glu Ser Leu Gln Arg Leu Asn Arg Leu Leu Pro  
 290 295 300  
 Ser Tyr Ser  
 305

&lt;210&gt; 1529

&lt;211&gt; 233

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1529

Thr Pro Tyr Ala Ser Leu Pro Met Gln Thr Ile Gln Glu Asn Lys Pro



1 5 10 15  
Ala Thr Phe Ser Ser Met Ser His Tyr Gly Asn Gln Thr Leu Gln Asp  
20 25 30  
Leu Leu Thr Ser Asp Ser Leu Ser His Ser Asp Val Met Met Thr Gln  
35 40 45  
Ser Asp Pro Leu Met Ser Gln Ala Ser Thr Ala Val Ser Ala Gln Asn  
50 55 60  
Ser Arg Arg Asn Val Met Leu Arg Asn Asp Pro Met Met Ser Phe Ala  
65 70 75 80  
Ala Gln Pro Asn Gln Gly Ser Leu Val Asn Gln Asn Leu Leu His His  
85 90 95  
Gln His Gln Thr Gln Gly Ala Leu Gly Gly Ser Arg Ala Leu Ser Asn  
100 105 110  
Ser Val Ser Asn Met Gly Leu Ser Glu Ser Ser Ser Leu Gly Ser Ala  
115 120 125  
Lys His Gln Gln Gln Ser Pro Val Ser Gln Ser Met Gln Thr Leu Ser  
130 135 140  
Asp Ser Leu Ser Gly Ser Ser Leu Tyr Ser Thr Ser Ala Asn Leu Pro  
145 150 155 160  
Val Met Gly His Glu Lys Phe Pro Ser Asp Leu Asp Leu Asp Met Phe  
165 170 175  
Asn Gly Ser Leu Glu Cys Asp Met Glu Ser Ile Ile Arg Ser Glu Leu  
180 185 190  
Met Asp Ala Asp Gly Leu Asp Phe Asn Phe Asp Ser Leu Ile Ser Thr  
195 200 205  
Gln Asn Val Val Gly Leu Asn Val Gly Asn Phe Thr Gly Ala Lys Gln  
210 215 220  
Ala Ser Ser Gln Ser Trp Val Pro Gly  
225 230

&lt;210&gt; 1530

&lt;211&gt; 363

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (178)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (179)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1530

Ala His Arg Leu Leu Val His Arg Asp Val Cys His His Val Ser Ser  
1 5 10 15

Glu Val Gln Phe Gly His Ala Gly Ala Cys Ala Asn Gln Ala Ser Glu  
20 25 30

Thr Ala Val Ala Lys Asn Gln Ala Leu Lys Glu Ala Gly Val Phe Val  
35 40 45

Pro Arg Ser Phe Asp Glu Leu Gly Glu Ile Ile Gln Ser Val Tyr Glu  
50 55 60

Asp Leu Val Ala Asn Gly Val Ile Val Pro Ala Gln Glu Val Pro Pro  
65 70 75 80

Pro Thr Val Pro Met Asp Tyr Ser Trp Ala Arg Glu Leu Gly Leu Ile  
85 90 95

Arg Lys Pro Ala Ser Phe Met Thr Ser Ile Cys Asp Glu Arg Gly Gln  
100 105 110

Glu Leu Ile Tyr Ala Gly Met Pro Ile Thr Glu Val Phe Lys Glu Glu  
115 120 125

Met Gly Ile Gly Gly Val Leu Gly Leu Leu Trp Phe Gln Lys Arg Leu  
130 135 140

Pro Lys Tyr Ser Cys Gln Phe Ile Glu Met Cys Leu Met Val Thr Ala  
145 150 155 160

Asp His Gly Pro Ala Val Ser Gly Ala His Asn Thr Ile Ile Cys Ala  
165 170 175

Arg Xaa Xaa Lys Asp Leu Val Ser Ser Leu Thr Ser Gly Leu Leu Thr  
180 185 190

Ile Gly Asp Arg Phe Gly Gly Ala Leu Asp Ala Ala Ala Lys Met Phe  
195 200 205

Ser Lys Ala Phe Asp Ser Gly Ile Ile Pro Met Glu Phe Val Asn Lys

210 215 220

Met Lys Lys Glu Gly Lys Leu Ile Met Gly Ile Gly His Arg Val Lys  
225 230 235 240

Ser Ile Asn Asn Pro Asp Met Arg Val Gln Ile Leu Lys Asp Tyr Val  
245 250 255

Arg Gln His Phe Pro Ala Thr Pro Leu Leu Asp Tyr Ala Leu Glu Val  
260 265 270

Glu Lys Ile Thr Thr Ser Lys Lys Pro Asn Leu Ile Leu Asn Val Asp  
275 280 285

Gly Leu Ile Gly Val Ala Phe Val Asp Met Leu Arg Asn Cys Gly Ser  
290 295 300

Phe Thr Arg Glu Glu Ala Asp Glu Tyr Ile Asp Ile Gly Ala Leu Asn  
305 310 315 320

Gly Ile Phe Val Leu Gly Arg Ser Met Gly Phe Ile Gly His Tyr Leu  
325 330 335

Asp Gln Lys Arg Leu Lys Gln Gly Leu Tyr Arg His Pro Trp Asp Asp  
340 345 350

Ile Ser Tyr Val Leu Pro Glu His Met Ser Met  
355 360

<210> 1531

<211> 397

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (179)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (180)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (181)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (358)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1531

Ser Val Ser Ala Ser Glu Val Thr Ser Thr Val Tyr Asn Thr Val Ser  
 1 5 10 15

Glu Gly Thr His Phe Leu Glu Thr Ile Glu Thr Pro Arg Pro Gly Lys  
 20 25 30

Leu Phe Pro Lys Asp Val Ser Ser Ser Thr Pro Pro Ser Val Thr Ser  
 35 40 45

Lys Ser Arg Val Ser Arg Leu Ala Gly Arg Lys Thr Asn Glu Ser Val  
 50 55 60

Ser Glu Pro Arg Lys Gly Phe Met Tyr Ser Arg Asn Thr Asn Glu Asn  
 65 70 75 80

Pro Gln Glu Cys Phe Asn Ala Ser Lys Leu Leu Thr Ser His Gly Met  
 85 90 95

Gly Ile Gln Val Pro Leu Asn Ala Thr Glu Phe Asn Tyr Leu Cys Pro  
 100 105 110

Ala Ile Ile Asn Gln Ile Asp Ala Arg Ser Cys Leu Ile His Thr Ser  
 115 120 125

Glu Lys Lys Ala Glu Ile Pro Pro Lys Thr Tyr Ser Leu Gln Ile Ala  
 130 135 140

Trp Val Gly Gly Phe Ile Ala Ile Ser Ile Ile Ser Phe Leu Ser Leu  
 145 150 155 160

Leu Gly Val Ile Leu Val Pro Leu Met Asn Arg Val Phe Phe Lys Phe  
 165 170 175

Leu Leu Xaa Xaa Xaa Val Ala Leu Ala Val Gly Thr Leu Ser Gly Asp  
 180 185 190

Ala Phe Leu His Leu Leu Pro His Ser His Ala Ser His His His Ser  
 195 200 205

His Ser His Glu Glu Pro Ala Met Glu Met Lys Arg Gly Pro Leu Phe  
 210 215 220

Ser His Leu Ser Ser Gln Asn Ile Glu Glu Ser Ala Tyr Phe Asp Ser  
 225 230 235 240

Thr Trp Lys Gly Leu Thr Ala Leu Gly Gly Leu Tyr Phe Met Phe Leu  
 245 250 255  
 Val Glu His Val Leu Thr Leu Ile Lys Gln Phe Lys Asp Lys Lys Lys  
 260 265 270  
 Lys Asn Gln Lys Lys Pro Glu Asn Asp Asp Asp Val Glu Ile Lys Lys  
 275 280 285  
 Gln Leu Ser Lys Tyr Glu Ser Gln Leu Ser Thr Asn Glu Glu Lys Val  
 290 295 300  
 Asp Thr Asp Asp Arg Thr Glu Gly Tyr Leu Arg Ala Asp Ser Gln Glu  
 305 310 315 320  
 Pro Ser His Phe Asp Ser Gln Gln Pro Ala Val Leu Glu Glu Glu Glu  
 325 330 335  
 Val Met Ile Ala His Ala His Pro Gln Glu Val Tyr Asn Glu Tyr Val  
 340 345 350  
 Pro Arg Gly Cys Lys Xaa Lys Cys His Ser His Phe His Asp Thr Leu  
 355 360 365  
 Gly Gln Ser Asp Asp Leu Ile His His His His Asp Phe Phe Lys Lys  
 370 375 380  
 Lys Lys Lys Lys Lys Lys Ile Lys Lys Lys Gln Lys Lys  
 385 390 395

&lt;210&gt; 1532

&lt;211&gt; 130

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1532

Val Trp His Phe Ile Leu Phe Leu Cys Cys Trp Leu Cys Ile Leu Glu  
 1 5 10 15  
 Gly Lys Lys Leu Leu Lys Gln Thr Ser Gln Phe Phe Phe Leu Phe Ser  
 20 25 30  
 Asn Tyr Pro Val Gly Asn Ser Gln Tyr Gly Gln Gln Gln Asp Ala Tyr  
 35 40 45  
 Gln Gly Pro Pro Pro Gln Gln Gly Tyr Pro Pro Gln Gln Gln Tyr  
 50 55 60  
 Pro Gly Gln Gln Gly Tyr Pro Gly Gln Gln Gln Gly Tyr Gly Pro Ser



&lt;400&gt; 1534

Gly Ala Ser Ala Arg Pro Pro Glu Arg Gly Pro His Pro Xaa Ala Ala  
1 5 10 15

Arg Asp Pro Arg Gly Pro Pro Leu Pro Leu Ser Phe Ser Ser Ala Pro  
20 25 30

Thr Asp Thr Phe His Ser Glu Val Ser Pro Ser Pro Leu Leu Lys Ser  
35 40 45

Pro Arg Ser Pro Leu His Pro Glu Val Ser Leu Tyr Arg Asp Pro Pro  
50 55 60

Ser Phe His Pro Glu Asp Arg Pro Asn Pro Arg Ser Pro Pro Leu Ser  
65 70 75 80

Xaa Ser Glu Arg Ala Ser Phe Gly Pro Lys Gln Pro Gly  
85 90

&lt;210&gt; 1535

&lt;211&gt; 150

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (75)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (83)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (106)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1535

Pro Glu Ser Leu Gly Gly Ser Pro Gly Pro Pro Arg Pro Arg Gln Ser  
1 5 10 15

Cys Ser Glu Thr Ser Val Val Leu Lys Cys His Ser Pro Arg Pro Gly  
20 25 30

Arg His Arg Ser Pro Glu Ser Trp Ala Leu Gly Thr Leu Glu Ala Ala  
35 40 45

Ala Pro Gly Thr Arg Gly Arg Pro Gly Ala Gly Glu Leu Arg Cys Trp  
50 55 60

Glu Arg Ala Val Phe Ala Asp Ser Gly Gly Xaa Gly Gly Ser Arg Pro  
65 70 75 80

Gly Ser Xaa Pro Gly Met Thr Met Leu Met Glu Leu Met Gly Gln Glu  
85 90 95

Trp Glu Arg Arg Ser Ala Ala Phe Cys Xaa Cys Ala Ser Ile Ala Lys  
100 105 110

Phe His Ser Pro Ser Ser Ala Ala Leu Leu Leu Ala Cys Gly Ser Pro  
115 120 125

Arg Tyr Asn Phe Trp Ser Cys Leu Phe Leu Leu Met Ser Phe Thr Val  
130 135 140

Asn Lys Phe Asp Cys His  
145 150

<210> 1536

<211> 74

<212> PRT

<213> Homo sapiens

<400> 1536

Leu Thr Tyr Ser Lys Asn Ala Pro Ile Leu Ser Asn Ser Met Pro Phe  
1 5 10 15

Asp Lys Cys Ser Val Pro Met Pro Arg Pro Pro Gln Ser Arg Glu Asn  
20 25 30

Ile Phe Ile Thr Pro Glu Gly Leu Leu Cys Ser Glu Tyr Ser Leu Gly  
35 40 45

Val Pro Ala Ala Gly Asp Ile Asp Leu Phe Ser Val Thr Val Asp Glu  
50 55 60

Ile Cys Leu Leu Tyr Thr Ile Phe Lys Asn  
65 70

<210> 1537

<211> 224

<212> PRT

<213> Homo sapiens



&lt;400&gt; 1537

Gly Thr Ser Arg Pro Val Ala Pro Glu Cys Thr Glu Asp Gly Gly Cys  
1 5 10 15

Cys Arg Thr Val Ala Pro Ser Val Gly Ser Ser Cys His Ala Pro Ala  
20 25 30

Val Thr Gln His Ala Pro Tyr Phe Lys Gly Thr Ala Val Val Asn Gly  
35 40 45

Glu Phe Lys Asp Leu Ser Leu Asp Asp Phe Lys Gly Lys Tyr Leu Val  
50 55 60

Leu Phe Phe Tyr Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile  
65 70 75 80

Val Ala Phe Ser Asp Lys Ala Asn Glu Phe His Asp Val Asn Cys Glu  
85 90 95

Val Val Ala Val Ser Val Asp Ser His Phe Ser His Leu Ala Trp Ile  
100 105 110

Asn Thr Pro Arg Lys Asn Gly Gly Leu Gly His Met Asn Ile Ala Leu  
115 120 125

Leu Ser Asp Leu Thr Lys Gln Ile Ser Arg Asp Tyr Gly Val Leu Leu  
130 135 140

Glu Gly Ser Gly Leu Ala Leu Arg Gly Leu Phe Ile Ile Asp Pro Asn  
145 150 155 160

Gly Val Ile Lys His Leu Ser Val Asn Asp Leu Pro Val Gly Arg Ser  
165 170 175

Val Glu Glu Thr Leu Arg Leu Val Lys Ala Phe Gln Tyr Val Glu Thr  
180 185 190

His Gly Glu Val Cys Pro Ala Asn Trp Thr Pro Asp Ser Pro Thr Ile  
195 200 205

Lys Pro Ser Pro Ala Ala Ser Lys Glu Tyr Phe Gln Lys Val Asn Gln  
210 215 220

&lt;210&gt; 1538

&lt;211&gt; 524

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1538

Ser Ile Met Asn Ile Asn Asp Leu Lys Leu Thr Leu Ser Lys Ala Gly  
 1 5 10 15

Gln Glu His Leu Leu Arg Phe Trp Asn Glu Leu Glu Glu Ala Gln Gln  
 20 25 30

Val Glu Leu Tyr Ala Glu Leu Gln Ala Met Asn Phe Glu Glu Leu Asn  
 35 40 45

Phe Phe Phe Gln Lys Ala Ile Glu Gly Phe Asn Gln Ser Ser His Gln  
 50 55 60

Lys Asn Val Asp Ala Arg Met Glu Pro Val Pro Arg Glu Val Leu Gly  
 65 70 75 80

Ser Ala Thr Arg Asp Gln Asp Gln Leu Gln Ala Trp Glu Ser Glu Gly  
 85 90 95

Leu Phe Gln Ile Ser Gln Asn Lys Val Ala Val Leu Leu Leu Ala Gly  
 100 105 110

Gly Gln Gly Thr Arg Leu Gly Val Ala Tyr Pro Lys Gly Met Tyr Asp  
 115 120 125

Val Gly Leu Pro Ser Arg Lys Thr Leu Phe Gln Ile Gln Ala Glu Arg  
 130 135 140

Ile Leu Lys Leu Gln Gln Val Ala Glu Lys Tyr Tyr Gly Asn Lys Cys  
 145 150 155 160

Ile Ile Pro Trp Tyr Ile Met Thr Ser Gly Arg Thr Met Glu Ser Thr  
 165 170 175

Lys Glu Phe Phe Thr Lys His Lys Tyr Phe Gly Leu Lys Lys Glu Asn  
 180 185 190

Val Ile Phe Phe Gln Gln Gly Met Leu Pro Ala Met Ser Phe Asp Gly  
 195 200 205

Lys Ile Ile Leu Glu Glu Lys Asn Lys Val Ser Met Ala Pro Asp Gly  
 210 215 220

Asn Gly Gly Leu Tyr Arg Ala Leu Ala Ala Gln Asn Ile Val Glu Asp  
 225 230 235 240

Met Glu Gln Arg Gly Ile Trp Ser Ile His Val Tyr Cys Val Asp Asn  
 245 250 255

Ile Leu Val Lys Val Ala Asp Pro Arg Phe Ile Gly Phe Cys Ile Gln  
260 265 270

Lys Gly Ala Asp Cys Gly Ala Lys Val Val Glu Lys Thr Asn Pro Thr  
275 280 285

Glu Pro Val Gly Val Val Cys Arg Val Asp Gly Val Tyr Gln Val Val  
290 295 300

Glu Tyr Ser Glu Ile Ser Leu Ala Thr Ala Gln Lys Arg Ser Ser Asp  
305 310 315 320

Gly Arg Leu Leu Phe Asn Ala Gly Asn Ile Ala Asn His Phe Phe Thr  
325 330 335

Val Pro Phe Leu Arg Asp Val Val Asn Val Tyr Glu Pro Gln Leu Gln  
340 345 350

His His Val Ala Gln Lys Lys Ile Pro Tyr Val Asp Thr Gln Gly Gln  
355 360 365

Leu Ile Lys Pro Asp Lys Pro Asn Gly Ile Lys Met Glu Lys Phe Val  
370 375 380

Phe Asp Ile Phe Gln Phe Ala Lys Lys Phe Val Val Tyr Glu Val Leu  
385 390 395 400

Arg Glu Asp Glu Phe Ser Pro Leu Lys Asn Ala Asp Ser Gln Asn Gly  
405 410 415

Lys Asp Asn Pro Thr Thr Ala Arg His Ala Leu Met Ser Leu His His  
420 425 430

Cys Trp Val Leu Asn Ala Gly Gly His Phe Ile Asp Glu Asn Gly Ser  
435 440 445

Arg Leu Pro Ala Ile Pro Arg Ser Ala Thr Asn Gly Lys Ser Glu Thr  
450 455 460

Ile Thr Ala Asp Val Asn His Asn Leu Lys Asp Ala Asn Asp Val Pro  
465 470 475 480

Ile Gln Cys Glu Ile Ser Pro Leu Ile Ser Tyr Ala Gly Glu Gly Leu  
485 490 495

Glu Ser Tyr Val Ala Asp Lys Glu Phe His Ala Pro Leu Ile Ile Asp  
500 505 510

Glu Asn Gly Val His Glu Leu Val Lys Asn Gly Ile  
515 520

&lt;210&gt; 1539

&lt;211&gt; 336

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1539

His Phe Ile Phe Leu Leu Lys Asn Phe Gln Gln Ser Ser Asn Asp Thr  
1 5 10 15

Phe Pro Thr Ala Met His Ile Ala Ala Ala Ile Glu Val His Glu Val  
20 25 30

Leu Leu Pro Gly Leu Gln Lys Leu His Asp Ala Leu Asp Ala Lys Ser  
35 40 45

Lys Glu Phe Ala Gln Ile Ile Lys Ile Gly Arg Thr His Thr Gln Asp  
50 55 60

Ala Val Pro Leu Thr Leu Gly Gln Glu Phe Ser Gly Tyr Val Gln Gln  
65 70 75 80

Val Lys Tyr Ala Met Thr Arg Ile Lys Ala Ala Met Pro Arg Ile Tyr  
85 90 95

Glu Leu Ala Ala Gly Gly Thr Ala Val Gly Thr Gly Leu Asn Thr Arg  
100 105 110

Ile Gly Phe Ala Glu Lys Val Ala Ala Lys Val Ala Ala Leu Thr Gly  
115 120 125

Leu Pro Phe Val Thr Ala Pro Asn Lys Phe Glu Ala Leu Ala Ala His  
130 135 140

Asp Ala Leu Val Glu Leu Ser Gly Ala Met Asn Thr Thr Ala Cys Ser  
145 150 155 160

Leu Met Lys Ile Ala Asn Asp Ile Arg Phe Leu Gly Ser Gly Pro Arg  
165 170 175

Ser Gly Leu Gly Glu Leu Ile Leu Pro Glu Asn Glu Pro Gly Ser Ser  
180 185 190

Ile Met Pro Gly Lys Val Asn Pro Thr Gln Cys Glu Ala Met Thr Met  
195 200 205

Val Ala Ala Gln Val Met Gly Asn His Val Ala Val Thr Val Gly Gly  
210 215 220

Ser Asn Gly His Phe Glu Leu Asn Val Phe Lys Pro Met Met Ile Lys

225                      230                      235                      240  
 Asn Val Leu His Ser Ala Arg Leu Leu Gly Asp Ala Ser Val Ser Phe  
                                  245                                   250                                   255  
 Thr Glu Asn Cys Val Val Gly Ile Gln Ala Asn Thr Glu Arg Ile Asn  
                                  260                                   265                                   270  
 Lys Leu Met Asn Glu Ser Leu Met Leu Val Thr Ala Leu Asn Pro His  
                                  275                                   280                                   285  
 Ile Gly Tyr Asp Lys Ala Ala Lys Ile Ala Lys Thr Ala His Lys Asn  
                                  290                                   295                                   300  
 Gly Ser Thr Leu Lys Glu Thr Ala Ile Glu Leu Gly Tyr Leu Thr Ala  
 305                                   310                                   315                                   320  
 Glu Gln Phe Asp Glu Trp Val Lys Pro Lys Asp Met Leu Gly Pro Lys  
                                  325                                   330                                   335

<210> 1540

<211> 126

<212> PRT

<213> Homo sapiens

<400> 1540

Gly Val Val Lys Ser Leu Leu Phe Thr Arg Cys Asn Val Leu Val Pro  
 1                                   5                                   10                                   15  
 Tyr Lys Gln Gly Trp Gly Gly Glu Gly Arg Ala Lys Thr Asn Ile Glu  
                                  20                                   25                                   30  
 Ile Leu Lys Gln Gln Gln Ser Glu Trp Ile Leu Phe Phe Val Ile Val  
                                  35                                   40                                   45  
 Gly Gly Leu Lys Asn Ser Pro His Val Ile Ile Val Asn Thr Leu Leu  
                                  50                                   55                                   60  
 Cys Gly His Cys Asn Ile Trp Gly Val Gly Gln Gly Gly Lys Val Thr  
                                  65                                   70                                   75                                   80  
 Ile Val His Met Ser Leu Ala Ser Val Gln Ser Ser Val Gln Asn Val  
                                  85                                   90                                   95  
 Met Leu Phe Cys Lys Lys Arg Phe Met Ile Phe Lys Ile Asn Leu Val  
                                  100                                   105                                   110

Asn Leu Phe Leu Val Val Ile Phe Phe Leu Arg Gln Ser Phe  
115 120 125

<210> 1541  
<211> 50  
<212> PRT  
<213> Homo sapiens

<400> 1541  
Asn Ser Ala Arg Val Cys Ile Leu Ser Arg Asp Arg Val Ser Pro Cys  
1 5 10 15

Trp Leu Gly Trp Cys Leu Ser Leu Asp Leu Val Ile His Pro Pro Gln  
20 25 30

Pro Pro Arg Val Leu Gly Leu Gln Val Arg Ala Thr Ala Pro Gly Trp  
35 40 45

Phe Ser  
50

<210> 1542  
<211> 45  
<212> PRT  
<213> Homo sapiens

<400> 1542  
Asp Phe Phe Leu Asn Ile Ser Glu Phe Glu Gly Asn Thr Asp Arg Phe  
1 5 10 15

Leu Pro Ser Ser Leu Pro Ile Thr His Leu Ser Asp Asn Thr Leu Leu  
20 25 30

Ile Glu Glu Val Ile Arg Ile Ile Phe Lys Phe Gln Ile  
35 40 45

<210> 1543  
<211> 239  
<212> PRT  
<213> Homo sapiens

<400> 1543  
Ile Ala Leu Pro Pro Ser Phe Gln Pro Gln Ser Asp Gly Arg Gly Asp  
1 5 10 15

Ala Ser Gly Arg Asn Ala Ala Met Ala Ala Gln Gly Glu Pro Gln Val  
                   20                  25                  30  
 Gln Phe Lys Leu Val Leu Val Gly Asp Gly Gly Thr Gly Lys Thr Thr  
           35                  40                  45  
 Phe Val Lys Arg His Leu Thr Gly Glu Phe Glu Lys Lys Tyr Val Ala  
       50                  55                  60  
 Thr Leu Gly Val Glu Val His Pro Leu Val Phe His Thr Asn Arg Gly  
   65                  70                  75                  80  
 Pro Ile Lys Phe Asn Val Trp Asp Thr Ala Gly Gln Glu Lys Phe Gly  
                   85                  90                  95  
 Gly Leu Arg Asp Gly Tyr Tyr Ile Gln Ala Gln Cys Ala Ile Ile Met  
           100                  105                  110  
 Phe Asp Val Thr Ser Arg Val Thr Tyr Lys Asn Val Pro Asn Trp His  
       115                  120                  125  
 Arg Asp Leu Val Arg Val Cys Glu Asn Ile Pro Ile Val Leu Cys Gly  
       130                  135                  140  
 Asn Lys Val Asp Ile Lys Asp Arg Lys Val Lys Ala Lys Ser Ile Val  
   145                  150                  155                  160  
 Phe His Arg Lys Lys Asn Leu Gln Tyr Tyr Asp Ile Ser Ala Lys Ser  
           165                  170                  175  
 Asn Tyr Asn Phe Glu Lys Pro Phe Leu Trp Leu Ala Arg Lys Leu Ile  
       180                  185                  190  
 Gly Asp Pro Asn Leu Glu Phe Val Ala Met Pro Ala Leu Ala Pro Pro  
       195                  200                  205  
 Glu Val Val Met Asp Pro Ala Leu Ala Ala Gln Tyr Glu His Asp Leu  
       210                  215                  220  
 Glu Val Ala Gln Thr Thr Ala Leu Pro Asp Glu Asp Asp Asp Leu  
   225                  230                  235

<210> 1544  
 <211> 109  
 <212> PRT  
 <213> Homo sapiens

<400> 1544

Val Val Thr Gly Ser Gly Ser Trp His Gln Val Ala Ser Ile Ile Arg  
1 5 10 15  
Ser Leu Thr Glu Asp Asn Met Gln Asn Ser His Met Asp Glu Tyr Arg  
20 25 30  
Asn Ser Ser Asn Gly Ser Thr Gly Asn Ser Ser Glu Val Val Val Glu  
35 40 45  
His Pro Thr Asp Phe Ser Thr Glu Ile Met Asn Val Thr Glu Met Glu  
50 55 60  
Gln Ser Pro Asp Asp Ser Pro Asn Val Asn Ala Ser Thr Glu Glu Thr  
65 70 75 80  
Glu Met Ala Ser Ala Val Asp Leu Pro Val Thr Leu Thr Glu Thr Glu  
85 90 95  
Ala Ile Ser Leu Gln Asn Met Lys Asn Phe Gly Lys Leu  
100 105

&lt;210&gt; 1545

&lt;211&gt; 199

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1545

Thr His Ala Ser Gly Pro Thr Arg Pro Gly Lys Met Ala Leu Ala Met  
1 5 10 15  
Leu Val Leu Val Val Ser Pro Trp Ser Ala Ala Arg Gly Val Leu Arg  
20 25 30  
Asn Tyr Trp Glu Arg Leu Leu Arg Lys Leu Pro Gln Ser Arg Pro Gly  
35 40 45  
Phe Pro Ser Pro Pro Trp Gly Pro Ala Leu Ala Val Gln Gly Pro Ala  
50 55 60  
Met Phe Thr Glu Pro Ala Asn Asp Thr Ser Gly Ser Lys Glu Asn Ser  
65 70 75 80  
Ser Leu Leu Asp Ser Ile Phe Trp Met Ala Ala Pro Lys Asn Arg Arg  
85 90 95  
Thr Ile Glu Val Asn Arg Cys Arg Arg Arg Asn Pro Gln Lys Leu Ile  
100 105 110  
Lys Val Lys Asn Asn Ile Asp Val Cys Pro Glu Cys Gly His Leu Lys



115

120

125

Gln Lys His Val Leu Cys Ala Tyr Cys Tyr Glu Lys Val Cys Lys Glu  
130 135 140

Thr Ala Glu Ile Arg Arg Gln Ile Gly Lys Gln Glu Gly Gly Pro Phe  
145 150 155 160

Lys Ala Pro Thr Ile Glu Thr Val Val Leu Tyr Thr Gly Glu Thr Pro  
165 170 175

Ser Glu Gln Asp Gln Gly Lys Arg Ile Ile Glu Arg Asp Arg Lys Arg  
180 185 190

Pro Ser Trp Phe Thr Gln Asn  
195

&lt;210&gt; 1546

&lt;211&gt; 163

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1546

Pro Thr Arg Pro Pro Thr Arg Pro Arg Arg Trp Arg Arg Arg Thr Ala  
1 5 10 15

Pro Glu Arg Ala Gly Ala Met Ser Ala Ala Arg Pro Gln Phe Ser Ile  
20 25 30

Asp Asp Ala Phe Glu Leu Ser Leu Glu Asp Gly Gly Pro Gly Pro Glu  
35 40 45

Ser Ser Gly Val Ala Arg Phe Gly Pro Leu His Phe Glu Arg Arg Ala  
50 55 60

Arg Phe Glu Val Ala Asp Glu Asp Lys Gln Ser Arg Leu Arg Tyr Gln  
65 70 75 80

Asn Leu Glu Asn Asp Glu Asp Gly Ala Gln Ala Ser Pro Glu Pro Asp  
85 90 95

Gly Gly Val Gly Thr Arg Leu Gly Pro Gly Ile Pro Ala Glu Leu Pro  
100 105 110

Pro Gly Leu Pro Val Leu Leu Pro Ala Leu Leu Arg Glu Val Ile Ala  
115 120 125

Ala Gln Arg Gly Pro Leu Ala Pro Met Gly Ala Pro Leu Leu Pro Cys  
130 135 140

Ser Val Pro Leu Ile Ser Arg Glu Glu Ala Leu Gln Asp Pro Arg Asn  
145 150 155 160

Pro Ser Pro

<210> 1547

<211> 176

<212> PRT

<213> Homo sapiens

<400> 1547

Ser Thr His Ala Ser Ala His Ala Ser Gly Pro Val Pro Ser Ala Ala  
1 5 10 15

Ser Ser Ala Gly Gly Ser Gly Gly Leu Ser Phe Arg Ala Ala Ser Ser  
20 25 30

Leu Pro Val Ser Pro Ser Leu Ala Val Ser Met Lys Ala Phe Ser Pro  
35 40 45

Val Arg Ser Val Arg Lys Asn Ser Leu Ser Asp His Ser Leu Gly Ile  
50 55 60

Ser Arg Ser Lys Thr Pro Val Asp Asp Pro Met Ser Leu Leu Tyr Asn  
65 70 75 80

Met Asn Asp Cys Tyr Ser Lys Leu Lys Glu Leu Val Pro Ser Ile Pro  
85 90 95

Gln Asn Lys Lys Val Ser Lys Met Glu Ile Leu Gln His Val Ile Asp  
100 105 110

Tyr Ile Leu Asp Leu Gln Ile Ala Leu Asp Ser His Pro Thr Ile Val  
115 120 125

Ser Leu His His Gln Arg Pro Gly Gln Asn Gln Ala Ser Arg Thr Pro  
130 135 140

Leu Thr Thr Leu Asn Thr Asp Ile Ser Ile Leu Ser Leu Gln Ala Ser  
145 150 155 160

Glu Phe Pro Ser Glu Leu Met Ser Asn Asp Ser Lys Ala Leu Cys Gly  
165 170 175

<210> 1548  
<211> 69  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (37)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (59)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (63)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1548  
Lys Lys Ser Leu Arg Cys Glu Tyr Arg Ile Asp Ile Glu Arg Leu Tyr  
1 5 10 15  
Met Ser Lys Thr His Leu Ser Ser Ser His Arg Pro Leu Gln Ser Gly  
20 25 30  
His Val Gly Gln Xaa Gly Thr Gly Ala Gly Asp Ala Pro Pro Gly Gln  
35 40 45  
Asn Ala Pro Phe Val Ala Leu Pro Asp Thr Xaa Tyr Leu Leu Xaa Lys  
50 55 60  
Arg Glu Thr Gly Ser  
65

<210> 1549  
<211> 41  
<212> PRT  
<213> Homo sapiens

<400> 1549  
Ile Leu Leu Tyr Lys His Phe His Ile Leu Pro Leu His Leu Thr Ile  
1 5 10 15  
Gln His Lys Gln Leu Leu Met Ala Leu Arg Ile Val Cys Thr Cys Asn  
20 25 30

Phe Glu Trp Leu Tyr Ala Val Ser Ser  
35 40

<210> 1550  
<211> 61  
<212> PRT  
<213> Homo sapiens

<400> 1550  
Phe Phe Ala Pro Leu Lys Pro Val Arg Ile Thr Met Glu Tyr Ser Ser  
1 5 10 15  
Ser Gly Lys Ala Thr Gly Glu Ala Asp Val His Phe Glu Thr His Glu  
20 25 30  
Asp Ala Val Ala Ala Met Leu Lys Asp Arg Ser His Val His His Arg  
35 40 45  
Tyr Ile Glu Leu Phe Leu Asn Ser Cys Pro Lys Gly Lys  
50 55 60

<210> 1551  
<211> 114  
<212> PRT  
<213> Homo sapiens

<400> 1551  
Gly Ser Leu Ala Ser Phe Leu Ala Cys Ser Ser Glu Phe Phe Gln Pro  
1 5 10 15  
Pro Pro Thr Ala Gln Phe Gln Ser His Phe Ser Thr Phe Arg Tyr Leu  
20 25 30  
Leu Gln Gln His Leu Lys Tyr Leu Glu Asn Ser Phe Met Pro Ala Ser  
35 40 45  
Leu Pro Asp Asp Leu Asn Met Val Leu Asp Leu Glu Phe Thr Phe Leu  
50 55 60  
Gln Gly His Cys Leu Phe Gln Arg Gly Glu Phe Thr Cys Ala Arg Val  
65 70 75 80  
Phe Thr Leu Gly Val Leu Pro Glu Leu Pro Gln Asp Glu Ser Gly Glu  
85 90 95  
Pro Thr Thr Ala Glu Lys Phe Ser Gln Cys Arg Asn Ile Glu Glu Phe

100

105

110

Ser Lys

&lt;210&gt; 1552

&lt;211&gt; 450

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (185)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (200)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (414)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (420)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (429)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (442)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1552

Thr Gly Cys Gly Lys Thr Thr Gln Val Thr Gln Phe Ile Leu Asp Asn  
1 5 10 15

Tyr Ile Glu Arg Gly Lys Gly Ser Ala Cys Arg Ile Val Cys Thr Gln  
20 25 30

Pro Arg Arg Ile Ser Ala Ile Ser Val Ala Glu Arg Val Ala Ala Glu  
35 40 45

Arg Ala Glu Ser Cys Gly Ser Gly Asn Ser Thr Gly Tyr Gln Ile Arg  
50 55 60

Leu Gln Ser Arg Leu Pro Arg Lys Gln Gly Ser Ile Leu Tyr Cys Thr  
65 70 75 80

Thr Gly Ile Ile Leu Gln Trp Leu Gln Ser Asp Pro Tyr Leu Ser Ser  
85 90 95

Val Ser His Ile Val Leu Asp Glu Ile His Glu Arg Asn Leu Gln Ser  
100 105 110

Asp Val Leu Met Thr Val Val Lys Asp Leu Leu Asn Phe Arg Ser Asp  
115 120 125

Leu Lys Val Ile Leu Met Ser Ala Thr Leu Asn Ala Glu Lys Phe Ser  
130 135 140

Glu Tyr Phe Gly Asn Cys Pro Met Ile His Ile Pro Gly Phe Thr Phe  
145 150 155 160

Pro Val Val Glu Tyr Leu Leu Glu Asp Val Ile Glu Lys Ile Arg Tyr  
165 170 175

Val Pro Glu Gln Lys Glu His Arg Xaa Gln Phe Lys Arg Gly Phe Met  
180 185 190

Gln Gly His Val Asn Arg Gln Xaa Lys Glu Glu Lys Glu Ala Ile Tyr  
195 200 205

Lys Glu Arg Trp Pro Asp Tyr Val Arg Glu Leu Arg Arg Arg Tyr Ser  
210 215 220

Ala Ser Thr Val Asp Val Ile Glu Met Met Glu Asp Asp Lys Val Asp  
225 230 235 240

Leu Asn Leu Ile Val Ala Leu Ile Arg Tyr Ile Val Leu Glu Glu Glu  
245 250 255

Asp Gly Ala Ile Leu Val Phe Leu Pro Gly Trp Asp Asn Ile Ser Thr  
260 265 270

Leu His Asp Leu Leu Met Ser Gln Val Met Phe Lys Ser Asp Lys Phe  
275 280 285

Leu Ile Ile Pro Leu His Ser Leu Met Pro Thr Val Asn Gln Thr Gln  
290 295 300

Val Phe Lys Arg Thr Pro Pro Gly Val Arg Lys Ile Val Ile Ala Thr  
305 310 315 320

Asn Ile Ala Glu Thr Ser Ile Thr Ile Asp Asp Val Val Tyr Val Ile  
325 330 335

Asp Gly Gly Lys Ile Lys Glu Thr His Phe Asp Thr Gln Asn Asn Ile  
340 345 350

Ser Thr Met Ser Ala Glu Trp Val Ser Lys Ala Asn Ala Lys Gln Arg  
355 360 365

Lys Gly Arg Ala Gly Arg Val Gln Pro Gly His Cys Tyr His Leu Tyr  
370 375 380

Asn Gly Leu Arg Ala Ser Leu Leu Asp Asp Tyr Gln Leu Pro Glu Ile  
385 390 395 400

Leu Arg Thr Pro Leu Glu Glu Leu Cys Leu Gln Ile Lys Xaa Phe Lys  
405 410 415

Ala Arg Trp Xaa Cys Leu Phe Leu Ser Arg Leu Met Xaa Pro Pro Ser  
420 425 430

Asn Glu Ala Val Leu Leu Ser Ile Arg Xaa Leu Met Glu Leu Glu Arg  
435 440 445

Phe Gly  
450

&lt;210&gt; 1553

&lt;211&gt; 446

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (61)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (64)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (99)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1553

Glu Leu Leu Ala Val Val Gly Pro Val Gly Ala Gly Lys Ser Ser Leu  
1 5 10 15

Leu Ser Ala Val Leu Gly Glu Leu Ala Pro Ser His Gly Leu Val Ser  
20 25 30

Val His Gly Arg Ile Ala Tyr Val Ser Gln Gln Pro Trp Val Phe Ser  
35 40 45

Gly Thr Leu Arg Ser Asn Ile Leu Phe Gly Lys Lys Xaa Glu Lys Xaa  
50 55 60

Arg Tyr Glu Lys Val Ile Lys Ala Cys Ala Leu Lys Lys Asp Leu Gln  
65 70 75 80

Leu Leu Glu Asp Gly Asp Leu Thr Val Ile Gly Asp Arg Gly Thr Thr  
85 90 95

Leu Ser Xaa Gly Gln Lys Ala Arg Val Asn Leu Ala Arg Ala Val Tyr  
100 105 110

Gln Asp Ala Asp Ile Tyr Leu Leu Asp Asp Pro Leu Ser Ala Val Asp  
115 120 125

Ala Glu Val Ser Arg His Leu Phe Glu Leu Cys Ile Cys Gln Ile Leu  
130 135 140

His Glu Lys Ile Thr Ile Leu Val Thr His Gln Leu Gln Tyr Leu Lys  
145 150 155 160

Ala Ala Ser Gln Ile Leu Ile Leu Lys Asp Gly Lys Met Val Gln Lys  
165 170 175

Gly Thr Tyr Thr Glu Phe Leu Lys Ser Gly Ile Asp Phe Gly Ser Leu  
180 185 190

Leu Lys Lys Asp Asn Glu Glu Ser Glu Gln Pro Pro Val Pro Gly Thr  
195 200 205

Pro Thr Leu Arg Asn Arg Thr Phe Ser Glu Ser Ser Val Trp Ser Gln  
210 215 220

Gln Ser Ser Arg Pro Ser Leu Lys Asp Gly Ala Leu Glu Ser Gln Asp  
225 230 235 240

Thr Glu Asn Val Pro Val Thr Leu Ser Glu Glu Asn Arg Ser Glu Gly  
245 250 255

Lys Val Gly Phe Gln Ala Tyr Lys Asn Tyr Phe Arg Ala Gly Ala His  
260 265 270



Trp Ile Val Phe Ile Phe Leu Ile Leu Leu Asn Thr Ala Ala Gln Val  
275 280 285

Ala Tyr Val Leu Gln Asp Trp Trp Leu Ser Tyr Trp Ala Asn Lys Gln  
290 295 300

Ser Met Leu Asn Val Thr Val Asn Gly Gly Gly Asn Val Thr Glu Lys  
305 310 315 320

Leu Asp Leu Asn Trp Tyr Leu Gly Ile Tyr Ser Gly Leu Thr Val Ala  
325 330 335

Thr Val Leu Phe Gly Ile Ala Arg Ser Leu Leu Val Phe Tyr Val Leu  
340 345 350

Val Asn Ser Ser Gln Thr Leu His Asn Lys Met Phe Glu Ser Ile Leu  
355 360 365

Lys Ala Pro Val Leu Phe Phe Asp Arg Asn Pro Ile Gly Arg Ile Leu  
370 375 380

Asn Arg Phe Ser Lys Asp Ile Gly His Leu Asp Asp Leu Leu Pro Leu  
385 390 395 400

Thr Phe Leu Asp Phe Ile Gln Val Thr Leu Arg Val Met Ser Gly Ser  
405 410 415

Gln Met Glu Asn Gly Ser Ser Tyr Phe Phe Lys Pro Phe Ser Trp Gly  
420 425 430

Leu Gly Val Gly Leu Ser Ala Trp Leu Cys Val Met Leu Thr  
435 440 445

<210> 1554

<211> 446

<212> PRT

<213> Homo sapiens

<400> 1554

Arg Lys Cys Glu Leu Ala His Cys Ser Leu Gly Val Phe Gly Val Arg  
1 5 10 15

Met Ala Leu Glu Gly Met Ser Lys Arg Lys Arg Lys Arg Ser Val Gln  
20 25 30

Glu Gly Glu Asn Pro Asp Asp Gly Val Arg Gly Ser Pro Pro Glu Asp  
35 40 45

Tyr Arg Leu Gly Gln Val Ala Ser Ser Leu Phe Arg Gly Glu His His

50	55	60
Ser Arg Gly Gly Thr Gly Arg Leu Ala Ser Leu Phe Ser Ser Leu Glu		
65	70	75 80
Pro Gln Ile Gln Pro Val Tyr Val Pro Val Pro Lys Gln Thr Ile Lys		
	85	90 95
Lys Thr Lys Arg Asn Glu Glu Glu Glu Ser Thr Ser Gln Ile Glu Arg		
	100	105 110
Pro Leu Ser Gln Glu Pro Ala Lys Lys Val Lys Ala Lys Lys Lys His		
	115	120 125
Thr Asn Ala Glu Lys Lys Leu Ala Asp Arg Glu Ser Ala Leu Ala Ser		
	130	135 140
Ala Asp Leu Glu Glu Glu Ile His Gln Lys Gln Gly Gln Lys Arg Lys		
	145	150 155 160
Asn Ser Gln Pro Gly Val Lys Val Ala Asp Arg Lys Ile Leu Asp Asp		
	165	170 175
Thr Glu Asp Thr Val Val Ser Gln Arg Lys Lys Ile Gln Ile Asn Gln		
	180	185 190
Glu Glu Glu Arg Leu Lys Asn Glu Arg Thr Val Phe Val Gly Asn Leu		
	195	200 205
Pro Val Thr Cys Asn Lys Lys Lys Leu Lys Ser Phe Phe Lys Glu Tyr		
	210	215 220
Gly Gln Ile Glu Ser Val Arg Phe Arg Ser Leu Ile Pro Ala Glu Gly		
	225	230 235 240
Thr Leu Ser Lys Lys Leu Ala Ala Ile Lys Arg Lys Ile His Pro Asp		
	245	250 255
Gln Lys Asn Ile Asn Ala Tyr Val Val Phe Lys Glu Glu Ser Ala Ala		
	260	265 270
Thr Gln Ala Leu Lys Arg Asn Gly Ala Gln Ile Ala Asp Gly Phe Arg		
	275	280 285
Ile Arg Val Asp Leu Ala Ser Glu Thr Ser Ser Arg Asp Lys Arg Ser		
	290	295 300
Val Phe Val Gly Asn Leu Pro Tyr Lys Val Glu Glu Ser Ala Ile Glu		
	305	310 315 320
Lys His Phe Leu Asp Cys Gly Ser Ile Met Ala Val Arg Ile Val Arg		

325 330 335  
Asp Lys Met Thr Gly Ile Gly Lys Gly Phe Gly Tyr Val Leu Phe Glu  
340 345 350  
Asn Thr Asp Ser Val His Leu Ala Leu Lys Leu Asn Asn Ser Glu Leu  
355 360 365  
Met Gly Arg Lys Leu Arg Val Met Arg Ser Val Asn Lys Glu Lys Phe  
370 375 380  
Lys Gln Gln Asn Ser Asn Pro Arg Leu Lys Asn Val Ser Lys Pro Lys  
385 390 395 400  
Gln Gly Leu Asn Phe Thr Ser Lys Thr Ala Glu Gly His Pro Lys Ser  
405 410 415  
Leu Phe Ile Gly Glu Lys Ala Val Leu Leu Lys Thr Lys Lys Lys Gly  
420 425 430  
Gln Lys Lys Ser Gly Arg Pro Lys Lys Gln Arg Lys Gln Lys  
435 440 445

&lt;210&gt; 1555

&lt;211&gt; 115

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (3)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (19)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (51)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1555

Ala Thr Xaa Val Gln His Gln Arg Ile His Thr Gly Glu Arg Pro Tyr  
1 5 10 15

Glu Cys Xaa Glu Cys Gly Lys Thr Phe Ser Arg Lys Asp Asn Leu Thr  
20 25 30

Gln His Lys Arg Ile His Thr Gly Glu Met Pro Tyr Lys Cys Asn Glu  
 35 40 45

Cys Gly Xaa Tyr Phe Ser His His Ser Asn Leu Ile Val His Gln Arg  
 50 55 60

Val His Asn Gly Ala Arg Pro Tyr Lys Cys Ser Asp Cys Gly Lys Val  
 65 70 75 80

Phe Arg His Lys Ser Thr Leu Val Gln His Glu Ser Ile His Thr Gly  
 85 90 95

Glu Asn Pro Tyr Val Ala Val Leu Trp Glu Ile Leu Trp Pro Gln Ile  
 100 105 110

His Pro His  
 115

<210> 1556  
 <211> 81  
 <212> PRT  
 <213> Homo sapiens

<400> 1556  
 Cys Gly Lys Thr Ala Ile Arg Lys Arg Lys Tyr Arg Ser Leu Asn Asn  
 1 5 10 15

Leu Trp Val Arg Lys Ala Ser Leu Asn Asn Gln Lys Leu Ala Val Leu  
 20 25 30

Ala Leu Phe Ser Ser Leu Phe Met Lys Met Lys Ser Glu Ile Thr Lys  
 35 40 45

Cys Lys Pro Gly Asn Ile Ile Leu Val Leu Leu Ser Trp Ile His Val  
 50 55 60

Lys Lys Arg Leu His Ser Leu Leu Met Leu Pro Thr Ser Cys Gly Phe  
 65 70 75 80

Val

<210> 1557  
 <211> 398  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 1557

Phe Arg Glu Met Val Ser Ser Ser Asn Leu Pro Gln Gly Trp Leu Glu  
1 5 10 15

Val Gln Gly Ile Pro Glu Gly Trp Asp Gly Val Ala Gly Trp Tyr Leu  
20 25 30

Pro Gly Ile Asn Pro Gly Arg Thr Ala Arg Arg Phe Ala Tyr Leu Phe  
35 40 45

Val Asn Ile Asn Val Thr Ser Glu Pro His Glu Val Leu Ala Leu Trp  
50 55 60

Phe Leu Trp Tyr Val Lys Gln Cys Gly Gly Thr Thr Arg Ile Phe Ser  
65 70 75 80

Val Thr Asn Gly Gly Gln Glu Arg Lys Phe Val Gly Gly Ser Gly Gln  
85 90 95

Val Ser Glu Arg Ile Met Asp Leu Leu Gly Asp Gln Val Lys Leu Asn  
100 105 110

His Pro Val Thr His Val Asp Gln Ser Ser Asp Asn Ile Ile Ile Glu  
115 120 125

Thr Leu Asn His Glu His Tyr Glu Cys Lys Tyr Val Ile Asn Ala Ile  
130 135 140

Pro Pro Thr Leu Thr Ala Lys Ile His Phe Arg Pro Glu Leu Pro Ala  
145 150 155 160

Glu Arg Asn Gln Leu Ile Gln Arg Leu Pro Met Gly Ala Val Ile Lys  
165 170 175

Cys Met Met Tyr Tyr Lys Glu Ala Phe Trp Lys Lys Lys Asp Tyr Cys  
180 185 190

Gly Cys Met Ile Ile Glu Asp Glu Asp Ala Pro Ile Ser Ile Thr Leu  
195 200 205

Asp Asp Thr Lys Pro Asp Gly Ser Leu Pro Ala Ile Met Gly Phe Ile  
210 215 220

Leu Ala Arg Lys Ala Asp Arg Leu Ala Lys Leu His Lys Glu Ile Arg  
225 230 235 240

Lys Lys Lys Ile Cys Glu Leu Tyr Ala Lys Val Leu Gly Ser Gln Glu  
245 250 255

Ala Leu His Pro Val His Tyr Glu Glu Lys Asn Trp Cys Glu Glu Gln

260                      265                      270  
 Tyr Ser Gly Gly Cys Tyr Thr Ala Tyr Phe Pro Pro Gly Ile Met Thr  
           275                      280                      285  
 Gln Tyr Gly Arg Val Ile Arg Gln Pro Val Gly Arg Ile Phe Phe Ala  
           290                      295                      300  
 Gly Thr Glu Thr Ala Thr Lys Trp Ser Gly Tyr Met Glu Gly Ala Val  
 305                      310                      315                      320  
 Glu Ala Gly Glu Arg Ala Ala Arg Glu Val Leu Asn Gly Leu Gly Lys  
                           325                      330                      335  
 Val Thr Glu Lys Asp Ile Trp Val Gln Glu Pro Glu Ser Lys Asp Val  
                           340                      345                      350  
 Pro Ala Val Glu Ile Thr His Thr Phe Trp Glu Arg Asn Leu Pro Ser  
           355                      360                      365  
 Val Ser Gly Leu Leu Lys Ile Ile Gly Phe Ser Thr Ser Val Thr Ala  
           370                      375                      380  
 Leu Gly Phe Val Leu Tyr Lys Tyr Lys Leu Leu Pro Arg Ser  
 385                      390                      395

&lt;210&gt; 1558

&lt;211&gt; 401

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (58)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1558

Ser Leu Ala Ala Pro Gly Ile Pro Glu His Arg Gln Arg Gly Thr Glu  
   1                          5                          10                          15  
 Lys Glu Ser Phe Phe Leu Gly Ser Gln Ser Arg Lys Gly Gly Ala Ala  
           20                          25                          30  
 Leu Ala Pro Ser Ala Gly Pro Ala Pro Arg Met Arg Ala Asp Ala Gly  
           35                          40                          45  
 Gly Arg Gly Cys Gly Ser Ala Asn Gly Xaa Pro Gly Ala Pro His Val  
           50                          55                          60

Arg Ala Ala Gly Pro Ala Ala Ala Ala Val Pro Gly Ala Arg Val Val  
 65 70 75 80

Cys Gly Gly Ser Arg Pro Arg Gln Gln Val Asp Ser Ser Lys Glu Ser  
 85 90 95

Ala Glu Ala Ala Cys Asp Ile Leu Ser Gln Leu Val Asn Cys Ser Leu  
 100 105 110

Lys Thr Leu Gly Leu Ile Ser Thr Ala Arg Pro Ser Phe Met Asp Leu  
 115 120 125

Pro Lys Ser His Phe Ile Ser Ala Leu Thr Val Val Phe Val Asn Ser  
 130 135 140

Lys Ser Leu Ser Ser Leu Lys Ile Asp Asp Thr Pro Val Asp Asp Pro  
 145 150 155 160

Ser Leu Lys Val Leu Val Ala Asn Asn Ser Asp Thr Leu Lys Leu Leu  
 165 170 175

Lys Met Ser Ser Cys Pro His Val Ser Pro Ala Gly Ile Leu Cys Val  
 180 185 190

Ala Asp Gln Cys His Gly Leu Arg Glu Leu Ala Leu Asn Tyr His Leu  
 195 200 205

Leu Ser Asp Glu Leu Leu Leu Ala Leu Ser Ser Glu Lys His Val Arg  
 210 215 220

Leu Glu His Leu Arg Ile Asp Val Val Ser Glu Asn Pro Gly Gln Thr  
 225 230 235 240

His Phe His Thr Ile Gln Lys Ser Ser Trp Asp Ala Phe Ile Arg His  
 245 250 255

Ser Pro Lys Val Asn Leu Val Met Tyr Phe Phe Leu Tyr Glu Glu Glu  
 260 265 270

Phe Asp Pro Phe Phe Arg Tyr Glu Ile Pro Ala Thr His Leu Tyr Phe  
 275 280 285

Gly Arg Ser Val Ser Lys Asp Val Leu Gly Arg Val Gly Met Thr Cys  
 290 295 300

Pro Arg Leu Val Glu Leu Val Val Cys Ala Asn Gly Leu Arg Pro Leu  
 305 310 315 320

Asp Glu Glu Leu Ile Arg Ile Ala Glu Arg Cys Lys Asn Leu Ser Ala  
 325 330 335

Ile Gly Leu Gly Glu Cys Glu Val Ser Cys Ser Ala Phe Val Glu Phe  
340 345 350

Val Lys Met Cys Gly Gly Arg Leu Ser Gln Leu Ser Ile Met Glu Glu  
355 360 365

Val Leu Ile Pro Asp Gln Lys Tyr Ser Leu Glu Gln Ile His Trp Glu  
370 375 380

Val Ser Lys His Leu Gly Arg Val Trp Phe Pro Asp Met Met Pro Thr  
385 390 395 400

Trp

<210> 1559

<211> 108

<212> PRT

<213> Homo sapiens

<400> 1559

Ala Gly Ala Gly Gly Arg Val Gly Asp Arg Ala Gly Val Arg Glu Arg  
1 5 10 15

Gln Gln Ser Gly His Arg His Ser Glu Gln Pro Arg Arg Arg Leu Cys  
20 25 30

Val Pro Val Asp Cys Leu Ala Ala Pro Ser Pro Thr Pro Arg Phe Leu  
35 40 45

Val Lys Arg Leu Arg Ala Ala Val Trp Gly Gly Gly Val Trp Ser Arg  
50 55 60

Val Leu Cys Pro Gln Trp Leu Leu Ser Gly Gly Arg Leu Phe Ala Glu  
65 70 75 80

Val Arg Arg Asp Ser Leu Gly Val Glu His Ile Thr Gly Phe Gly Cys  
85 90 95

Leu Val Cys Glu His His Arg Val Cys Gly Cys Thr  
100 105

<210> 1560

<211> 68

<212> PRT

<213> Homo sapiens



&lt;400&gt; 1560

Glu Leu Ser Pro Leu Ser Phe Arg Ser Thr Arg Gly Phe His Thr Tyr  
1 5 10 15

Phe Ile Glu His Pro Phe Ile Phe Ile Ser Val Tyr Arg Thr Lys Lys  
20 25 30

Asn Ser Ser Val Lys Asn Leu Cys Cys Gly Leu Ser Ile Phe Ala Ala  
35 40 45

Phe Gly Leu Arg Trp Arg Ile Lys Ala Ser Leu Pro Leu Ser Ser Val  
50 55 60

Phe Arg Lys Leu  
65

&lt;210&gt; 1561

&lt;211&gt; 80

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1561

Leu Met Met Thr Ile Tyr Ala Leu Ser Asn Glu Phe Ala Phe Lys Ile  
1 5 10 15

Asn Glu Glu Gln Leu Ser Phe Phe Pro Leu Leu Ser Val Gln Leu Trp  
20 25 30

His Ala Gln Arg Phe Leu Leu Asp Ser Ser Trp Ser Gly Val Ile Pro  
35 40 45

Phe Phe Phe Ser Cys Ser Cys Leu Pro Phe Leu Tyr Pro Pro Lys Trp  
50 55 60

Arg Gln Ile His Asp Leu Lys Asp Thr Gln Tyr Leu Leu Asn Ser Ser  
65 70 75 80

&lt;210&gt; 1562

&lt;211&gt; 198

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (4)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (193)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1562

Arg Gly Leu Xaa Ser Arg Gly Ala Gly Gln Val Pro Gly Cys Leu Gly  
1 5 10 15

Trp His Arg Ser Val Val Pro Gly Gly Ala Val Ala Ala Leu Pro Pro  
20 25 30

Ser Arg Arg Gln Arg Val Arg Gly Pro Val Arg Pro Glu Pro Gly Ala  
35 40 45

Thr Pro Arg Ala Val Leu Gly Glu Thr Arg Val Pro Val Leu Arg Leu  
50 55 60

Leu Leu Gly Ser Ala Leu Val Gly Arg Leu Leu Asp Ser Leu Lys Arg  
65 70 75 80

Asp Tyr Ala Gly Lys Pro Gln Pro Pro Ile Lys Ser Glu Arg Arg Asn  
85 90 95

Pro Pro Ser Tyr Ala Met Ala Gly Lys Lys Val Leu Ile Val Tyr Ala  
100 105 110

His Gln Glu Pro Lys Ser Phe Asn Gly Ser Leu Lys Asn Val Ala Val  
115 120 125

Asp Glu Leu Ser Arg Gln Gly Cys Thr Val Thr Val Ser Asp Leu Tyr  
130 135 140

Ala Met Asn Phe Glu Pro Arg Ala Thr Asp Lys Asp Ile Thr Gly Thr  
145 150 155 160

Leu Ser Asn Pro Glu Val Phe Asn Tyr Gly Val Glu Thr His Glu Ala  
165 170 175

Tyr Lys Gln Arg Ser Leu Ala Ser Asp Ile Thr Asp Glu Gln Lys Lys  
180 185 190

Xaa Ser Gly Arg Leu Thr  
195

&lt;210&gt; 1563

&lt;211&gt; 488

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1563

Gly Arg Glu Ala Ser Lys Met Ala Gln Thr Gln Gly Thr Arg Arg Lys  
 1 5 10 15

Val Cys Tyr Tyr Tyr Asp Gly Asp Val Gly Asn Tyr Tyr Tyr Gly Gln  
 20 25 30

Gly His Pro Met Lys Pro His Arg Ile Arg Met Thr His Asn Leu Leu  
 35 40 45

Leu Asn Tyr Gly Leu Tyr Arg Lys Met Glu Ile Tyr Arg Pro His Lys  
 50 55 60

Ala Asn Ala Glu Glu Met Thr Lys Tyr His Ser Asp Asp Tyr Ile Lys  
 65 70 75 80

Phe Leu Arg Ser Ile Arg Pro Asp Asn Met Ser Glu Tyr Ser Lys Gln  
 85 90 95

Met Gln Arg Phe Asn Val Gly Glu Asp Cys Pro Val Phe Asp Gly Leu  
 100 105 110

Phe Glu Phe Cys Gln Leu Ser Thr Gly Gly Ser Val Ala Ser Ala Val  
 115 120 125

Lys Leu Asn Lys Gln Gln Thr Asp Ile Ala Val Asn Trp Ala Gly Gly  
 130 135 140

Leu His His Ala Lys Lys Ser Glu Ala Ser Gly Phe Cys Tyr Val Asn  
 145 150 155 160

Asp Ile Val Leu Ala Ile Leu Glu Leu Leu Lys Tyr His Gln Arg Val  
 165 170 175

Leu Tyr Ile Asp Ile Asp Ile His His Gly Asp Gly Val Glu Glu Ala  
 180 185 190

Phe Tyr Thr Thr Asp Arg Val Met Thr Val Ser Phe His Lys Tyr Gly  
 195 200 205

Glu Tyr Phe Pro Gly Thr Gly Asp Leu Arg Asp Ile Gly Ala Gly Lys  
 210 215 220

Gly Lys Tyr Tyr Ala Val Asn Tyr Pro Leu Arg Asp Gly Il Asp Asp  
 225 230 235 240

Glu Ser Tyr Glu Ala Ile Phe Lys Pro Val Met Ser Lys Val Met Glu

245 250 255  
Met Phe Gln Pro Ser Ala Val Val Leu Gln Cys Gly Ser Asp Ser Leu  
260 265 270  
Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu Thr Ile Lys Gly His Ala  
275 280 285  
Lys Cys Val Glu Phe Val Lys Ser Phe Asn Leu Pro Met Leu Met Leu  
290 295 300  
Gly Gly Gly Gly Tyr Thr Ile Arg Asn Val Ala Arg Cys Trp Thr Tyr  
305 310 315 320  
Glu Thr Ala Val Ala Leu Asp Thr Glu Ile Pro Asn Glu Leu Pro Tyr  
325 330 335  
Asn Asp Tyr Phe Glu Tyr Phe Gly Pro Asp Phe Lys Leu His Ile Ser  
340 345 350  
Pro Ser Asn Met Thr Asn Gln Asn Thr Asn Glu Tyr Leu Glu Lys Ile  
355 360 365  
Lys Gln Arg Leu Phe Glu Asn Leu Arg Met Leu Pro His Ala Pro Gly  
370 375 380  
Val Gln Met Gln Ala Ile Pro Glu Asp Ala Ile Pro Glu Glu Ser Gly  
385 390 395 400  
Asp Glu Asp Glu Asp Asp Pro Asp Lys Arg Ile Ser Ile Cys Ser Ser  
405 410 415  
Asp Lys Arg Ile Ala Cys Glu Glu Glu Phe Ser Asp Ser Glu Glu Glu  
420 425 430  
Gly Glu Gly Gly Arg Lys Asn Ser Ser Asn Phe Lys Lys Ala Lys Arg  
435 440 445  
Val Lys Thr Glu Asp Glu Lys Glu Lys Asp Pro Glu Glu Lys Lys Glu  
450 455 460  
Val Thr Glu Glu Glu Lys Thr Lys Glu Glu Lys Pro Glu Ala Lys Gly  
465 470 475 480  
Val Lys Glu Glu Val Lys Leu Ala  
485

&lt;210&gt; 1564

&lt;211&gt; 197

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (155)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (178)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (179)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (187)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (189)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1564

Ala Arg Ser Ser Leu Trp Arg Arg Gln Pro Gly Trp Gln Leu Thr Gly  
1 5 10 15

Gln Pro Gly Ser Ile Leu Leu Arg Val Phe Ser Lys Ser Arg Ala Gly  
20 25 30

Leu Glu Ala Arg Lys Leu Lys Ala Tyr Arg Thr Met Glu Tyr Met Ala  
35 40 45

Glu Ser Thr Asp Arg Ser Pro Gly His Ile Leu Cys Cys Glu Cys Gly  
50 55 60

Val Pro Ile Ser Pro Asn Pro Ala Asn Ile Cys Val Ala Cys Leu Arg  
65 70 75 80

Ser Lys Val Asp Ile Ser Gln Gly Ile Pro Lys Gln Val Ser Ile Ser  
85 90 95

Phe Cys Lys Gln Cys Gln Arg Tyr Phe Gln Pro Pro Gly Thr Trp Ile  
100 105 110

Gln Cys Ala Leu Glu Ser Arg Glu Leu Leu Ala Leu Cys Leu Lys Lys

115                      120                      125  
 Ile Lys Ala Pro Leu Ser Lys Val Arg Leu Val Asp Ala Gly Phe Val  
     130                      135                      140  
 Trp Thr Glu Pro His Ser Lys Arg Leu Lys Xaa Lys Leu Thr Ile Gln  
     145                      150                      155                      160  
 Lys Glu Val Met Asn Gly Ala Ile Leu Gln Gln Val Phe Val Val Asp  
                     165                      170                      175  
 Tyr Xaa Xaa Pro Lys Trp Gly Glu Met Ala Xaa Arg Xaa Leu Arg Ile  
                     180                      185                      190  
 Leu Glu Arg Leu Asp  
     195

&lt;210&gt; 1565

&lt;211&gt; 197

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (179)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (189)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (190)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1565

Met Gln Phe Ala Trp Gln Ser Tyr Lys Arg Tyr Ala Met Gly Lys Asn  
     1                      5                      10                      15

Glu Leu Arg Pro Leu Thr Lys Asp Gly Tyr Glu Gly Asn Met Phe Gly  
                     20                      25                      30

Gly Leu Ser Gly Ala Thr Val Ile Asp Ser Leu Asp Thr Leu Tyr Leu  
                     35                      40                      45

Met Glu Leu Lys Glu Glu Phe Gln Glu Ala Lys Ala Trp Val Gly Glu  
                     50                      55                      60

Ser Phe His Leu Asn Val Ser Gly Glu Ala Ser Leu Phe Glu Val Asn  
65 70 75 80

Ile Arg Tyr Ile Gly Gly Leu Leu Ser Ala Phe Tyr Leu Thr Gly Glu  
85 90 95

Glu Val Phe Arg Ile Lys Ala Ile Arg Leu Gly Glu Lys Leu Leu Pro  
100 105 110

Ala Phe Asn Thr Pro Thr Gly Ile Pro Lys Gly Val Val Ser Phe Lys  
115 120 125

Ser Gly Asn Trp Gly Trp Ala Thr Ala Gly Ser Ser Ser Ile Leu Ala  
130 135 140

Glu Phe Gly Ser Leu His Leu Glu Phe Leu His Leu Thr Glu Leu Ser  
145 150 155 160

Gly Asn Gln Val Phe Ala Glu Lys Val Arg Asn Ile Arg Lys Val Leu  
165 170 175

Arg Lys Xaa Glu Lys Pro Phe Gly Leu Tyr Ser Asn Xaa Xaa Met Val  
180 185 190

Leu Gln Thr Asp Pro  
195

<210> 1566

<211> 240

<212> PRT

<213> Homo sapiens

<400> 1566

Ala Asp Pro Glu Gly Gln Ala Gly Arg Ala Gly Arg Ala Leu Arg Arg  
1 5 10 15

His Gly His Leu His Glu Gly Ser Asp Arg Ala Gly Arg Arg Ala Val  
20 25 30

Gln Arg Gly Ala Gln Pro Ala Leu Arg Gly Leu Gln Glu Arg Gly Arg  
35 40 45

Gly Pro Gln Ser Ala Trp Arg Val Ile Ser Ser Ile Glu Gln Lys Thr  
50 55 60

Asp Thr Ser Asp Lys Lys Leu Gln Leu Ile Lys Asp Tyr Arg Glu Lys  
65 70 75 80

Val Glu Ser Glu Leu Arg Ser Ile Cys Thr Thr Val Leu Glu Leu Leu  
                             85                            90                            95  
 Asp Lys Tyr Leu Ile Ala Asn Ala Thr Asn Pro Glu Ser Lys Val Phe  
                             100                            105                            110  
 Tyr Leu Lys Met Lys Gly Asp Tyr Phe Arg Tyr Leu Ala Glu Val Ala  
                             115                            120                            125  
 Cys Gly Asp Asp Arg Lys Gln Thr Ile Asp Asn Ser Gln Gly Ala Tyr  
                             130                            135                            140  
 Gln Glu Ala Phe Asp Ile Ser Lys Lys Glu Met Gln Pro Thr His Pro  
 145                            150                            155                            160  
 Ile Arg Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile  
                             165                            170                            175  
 Leu Asn Asn Pro Glu Leu Ala Cys Thr Leu Ala Lys Thr Ala Phe Asp  
                             180                            185                            190  
 Glu Ala Ile Ala Glu Leu Asp Thr Leu Asn Glu Asp Ser Tyr Lys Asp  
                             195                            200                            205  
 Ser Thr Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr  
                             210                            215                            220  
 Ser Asp Ser Ala Gly Glu Glu Cys Asp Ala Ala Glu Gly Ala Glu Asn  
 225                            230                            235                            240

&lt;210&gt; 1567

&lt;211&gt; 220

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1567

Lys Ala Arg Arg Arg Gly Thr Met Ala Ala Ala Asp Glu Arg Ser  
   1                            5                            10                            15

Pro Glu Asp Gly Glu Asp Glu Glu Glu Glu Gln Leu Val Leu Val  
                             20                            25                            30



Glu Leu Ser Gly Ile Ile Asp Ser Xaa Phe Leu Ser Lys Cys Glu Asn  
35 40 45

Lys Cys Lys Val Leu Gly Ile Asp Thr Glu Arg Pro Ile Leu Gln Val  
50 55 60

Asp Ser Cys Val Phe Ala Gly Glu Tyr Glu Asp Thr Leu Gly Thr Cys  
65 70 75 80

Val Ile Phe Glu Glu Asn Val Glu His Ala Asp Thr Glu Gly Asn Asn  
85 90 95

Lys Thr Val Leu Lys Tyr Lys Cys His Thr Met Lys Lys Leu Ser Met  
100 105 110

Thr Arg Thr Leu Leu Thr Glu Lys Lys Glu Gly Glu Glu Asn Ile Gly  
115 120 125

Gly Val Glu Trp Leu Gln Ile Lys Asp Asn Asp Phe Ser Tyr Arg Pro  
130 135 140

Asn Met Ile Cys Asn Phe Leu His Glu Asn Glu Asp Glu Glu Val Val  
145 150 155 160

Ala Ser Ala Pro Asp Lys Ser Leu Glu Leu Glu Glu Glu Glu Ile Gln  
165 170 175

Met Asn Asp Ser Ser Asn Leu Ser Cys Glu Gln Glu Lys Pro Met His  
180 185 190

Leu Glu Ile Glu Asp Ser Gly Pro Leu Ile Asp Ile Pro Ser Glu Thr  
195 200 205

Glu Gly Ser Val Phe Met Glu Thr Gln Met Leu Pro  
210 215 220

<210> 1568

<211> 180

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1568

Ala Trp Gln Glu Phe Gly Gln Xaa Pro Gly Ala Xaa Trp Gln Arg Arg  
 1 5 10 15

Cys Ala Cys Val Val Glu Cys Ser Gly Arg Arg Pro Ala Gly Ala Met  
 20 25 30

Val Phe Leu Thr Ala Gln Leu Trp Leu Arg Asn Arg Val Thr Asp Arg  
 35 40 45

Tyr Phe Arg Ile Gln Glu Val Leu Lys His Ala Arg His Phe Arg Gly  
 50 55 60

Arg Lys Asn Arg Cys Tyr Arg Leu Ala Val Arg Thr Val Ile Arg Ala  
 65 70 75 80

Phe Val Lys Cys Thr Lys Ala Arg Tyr Leu Lys Lys Lys Asn Met Arg  
 85 90 95

Thr Leu Trp Ile Asn Arg Ile Thr Ala Ala Ser Gln Glu His Gly Leu  
 100 105 110

Lys Tyr Pro Ala Leu Ile Gly Asn Leu Val Lys Cys Gln Val Glu Leu  
 115 120 125

Asn Arg Lys Val Leu Ala Asp Leu Ala Ile Tyr Glu Pro Lys Thr Phe  
 130 135 140

Lys Ser Leu Ala Ala Leu Ala Ser Arg Arg Arg His Glu Gly Phe Ala  
 145 150 155 160

Ala Ala Leu Gly Asp Gly Lys Glu Pro Glu Gly Ile Phe Ser Arg Val  
 165 170 175

Val Gln Tyr His  
 180

&lt;210&gt; 1569

&lt;211&gt; 160

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1569

Ala Gly Pro Tyr Ala Asp Ser Ile Trp Ala Pro Ala Arg Ser Ala Ala  
 1 5 10 15

Gly Gln Arg Gly Val Ala Met Ala Glu Leu Gln Gln Leu Arg Val Gln  
                   20                                  25                                  30  
 Glu Ala Val Glu Ser Met Val Lys Ser Leu Glu Arg Glu Asn Ile Arg  
                   35                                  40                                  45  
 Lys Met Gln Gly Leu Met Phe Arg Cys Ser Ala Ser Cys Cys Glu Asp  
                   50                                  55                                  60  
 Ser Gln Ala Ser Met Lys Gln Val His Gln Cys Ile Glu Arg Cys His  
                   65                                  70                                  75                                  80  
 Val Pro Leu Ala Gln Ala Gln Ala Leu Val Thr Ser Glu Leu Glu Lys  
                                   85                                  90                                  95  
 Phe Gln Asp Arg Leu Ala Arg Cys Thr Met His Cys Asn Asp Lys Ala  
                   100                                  105                                  110  
 Lys Asp Ser Ile Asp Ala Gly Ser Lys Glu Leu Gln Val Lys Gln Gln  
                   115                                  120                                  125  
 Leu Asp Ser Cys Val Thr Lys Cys Val Asp Asp His Met His Leu Ile  
                   130                                  135                                  140  
 Pro Thr Met Thr Lys Lys Met Lys Glu Ala Leu Leu Ser Ile Gly Lys  
                   145                                  150                                  155                                  160

&lt;210&gt; 1570

&lt;211&gt; 77

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (13)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1570

Gly Leu Ser Asp His Leu Val Phe Pro Phe Ser Ala Xaa His Val Ser  
   1                                  5                                  10                                  15  
 Arg Gly Val Ala Pro Tyr His Thr Ser Arg Ala Pro Glu Pro Tyr Phe  
                   20                                  25                                  30  
 Leu Ile Ser Ser Gly Leu Asp Phe Pro Val Leu His Gln Gln Leu Gln  
                   35                                  40                                  45

Tyr Pro Lys Leu Ser Ser Pro Ala Asp Pro Pro Ser Asn Gly Val Glu  
50 55 60

Thr Gly Gly Gln Cys Leu Val Cys Phe Leu Arg Asn Leu  
65 70 75

<210> 1571  
<211> 218  
<212> PRT  
<213> Homo sapiens

<400> 1571  
Glu Gly Pro Ile Pro Trp Gly Arg Arg Arg Arg Glu Pro Glu Pro Leu  
1 5 10 15

Leu Pro Met Ala Lys Lys Thr Tyr Asp Leu Leu Phe Lys Leu Leu Leu  
20 25 30

Ile Gly Asp Ser Gly Val Gly Lys Thr Cys Val Leu Phe Arg Phe Ser  
35 40 45

Asp Asp Ala Phe Asn Thr Thr Phe Ile Ser Thr Ile Gly Ile Asp Phe  
50 55 60

Lys Ile Lys Thr Val Glu Leu Gln Gly Lys Lys Ile Lys Leu Gln Ile  
65 70 75 80

Trp Asp Thr Ala Gly Gln Glu Arg Phe His Thr Ile Thr Thr Ser Tyr  
85 90 95

Tyr Arg Gly Ala Met Gly Ile Met Leu Val Tyr Asp Ile Thr Asn Gly  
100 105 110

Lys Ser Phe Glu Asn Ile Ser Lys Trp Leu Arg Asn Ile Asp Glu His  
115 120 125

Ala Asn Glu Asp Val Glu Arg Met Leu Leu Gly Asn Lys Cys Asp Met  
130 135 140

Asp Asp Lys Arg Val Val Pro Lys Gly Lys Gly Glu Gln Ile Ala Arg  
145 150 155 160

Glu His Gly Ile Arg Phe Phe Glu Thr Ser Ala Lys Ala Asn Ile Asn  
165 170 175

Ile Glu Lys Ala Phe Leu Thr Leu Ala Glu Asp Ile Leu Arg Lys Thr  
180 185 190

Pro Val Lys Glu Pro Asn Ser Glu Asn Val Asp Ile Ser Ser Gly Gly  
195 200 205

Gly Val Thr Gly Trp Lys Ser Lys Cys Cys  
210 215

<210> 1572

<211> 265

<212> PRT

<213> Homo sapiens

<400> 1572

Arg Asn Leu Leu Ala Trp Pro Arg Arg Leu Ser Gly Ile Ala Arg Ala  
1 5 10 15

Leu Arg Phe Ile Ala Thr Pro Arg Leu Ser Ala Met Pro His Ile Asp  
20 25 30

Asn Asp Val Lys Leu Asp Phe Lys Asp Val Leu Leu Arg Pro Lys Arg  
35 40 45

Ser Thr Leu Lys Ser Arg Ser Glu Val Asp Leu Thr Arg Ser Phe Ser  
50 55 60

Phe Arg Asn Ser Lys Gln Thr Tyr Ser Gly Val Pro Ile Ile Ala Ala  
65 70 75 80

Asn Met Asp Thr Val Gly Thr Phe Glu Met Ala Lys Val Leu Cys Lys  
85 90 95

Phe Ser Leu Phe Thr Ala Val His Lys His Tyr Ser Leu Val Gln Trp  
100 105 110

Gln Glu Phe Ala Gly Gln Asn Pro Asp Cys Leu Glu His Leu Ala Ala  
115 120 125

Ser Ser Gly Thr Gly Ser Ser Asp Phe Glu Gln Leu Glu Gln Ile Leu  
130 135 140

Glu Ala Ile Pro Gln Val Lys Tyr Ile Cys Leu Asp Val Ala Asn Gly  
145 150 155 160

Tyr Ser Glu His Phe Val Glu Phe Val Lys Asp Val Arg Lys Arg Phe  
165 170 175

Pro Gln His Thr Ile Met Ala Gly Asn Val Val Thr Gly Glu Met Val  
180 185 190

Glu Glu Leu Ile Leu Ser Gly Ala Asp Ile Ile Lys Val Gly Ile Gly

195                      200                      205  
 Pro Gly Ser Val Cys Thr Thr Arg Lys Lys Thr Gly Val Gly Tyr Pro  
     210                      215                      220  
 Gln Leu Ser Ala Val Met Glu Cys Ala Asp Ala Ala His Gly Leu Lys  
     225                      230                      235                      240  
 Gly Thr Ser Phe Gln Met Glu Val Ala Ala Val Leu Gly Met Trp Pro  
             245                      250                      255  
 Arg Leu Leu Gly Gln Glu Leu Thr Ser  
             260                      265  
  
 <210> 1573  
 <211> 128  
 <212> PRT  
 <213> Homo sapiens  
  
 <400> 1573  
 Glu Thr Thr Thr Thr Thr Leu Trp Arg Arg Asn Ala Asn Gly Asp Pro  
     1                      5                      10                      15  
 Val Cys Asn Ala Cys Gly Leu Tyr Tyr Lys Leu His Asn Val Asn Arg  
             20                      25                      30  
 Pro Leu Thr Met Lys Lys Glu Gly Ile Gln Thr Arg Asn Arg Lys Met  
             35                      40                      45  
 Ser Asn Lys Ser Lys Lys Ser Lys Lys Gly Ala Glu Cys Phe Glu Glu  
             50                      55                      60  
 Leu Ser Lys Cys Met Gln Glu Lys Ser Ser Pro Phe Ser Ala Ala Ala  
             65                      70                      75                      80  
 Leu Ala Gly His Met Ala Pro Val Gly His Leu Pro Pro Phe Ser His  
             85                      90                      95  
 Ser Gly His Ile Leu Pro Thr Pro Thr Pro Ile His Pro Ser Ser Ser  
             100                      105                      110  
 Leu Ser Phe Gly His Pro His Pro Ser Ser Met Val Thr Ala Met Gly  
             115                      120                      125

&lt;210&gt; 1574

&lt;211&gt; 334

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (4)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1574

Gly Ala Arg Xaa Asp Arg Ala Leu Leu Arg Pro Pro Leu Leu Arg Glu  
1 5 10 15

Leu Thr Pro Arg Ser Pro Arg Pro Pro Leu Ala Pro Ala Ala Arg Pro  
20 25 30

Ser Trp Pro Cys Leu Cys Leu Asp Gly Gly Val Ser Gly Val Phe Val  
35 40 45

Trp Asp Glu Glu Arg Ile Gln Glu Glu Glu Leu Gln Arg Ser Ile Asn  
50 55 60

Glu Met Lys Arg Leu Glu Glu Met Ser Asn Met Phe Gln Ser Ser Gly  
65 70 75 80

Val Gln His His Pro Pro Glu Pro Lys Ala Gln Thr Glu Gly Asn Glu  
85 90 95

Asp Ser Glu Gly Lys Glu Gln Arg Trp Glu Met Val Met Asp Lys Lys  
100 105 110

His Phe Lys Leu Trp Arg Arg Pro Ile Thr Gly Thr His Leu Tyr Gln  
115 120 125

Tyr Arg Val Phe Gly Thr Tyr Thr Asp Val Thr Pro Arg Gln Phe Phe  
130 135 140

Asn Val Gln Leu Asp Thr Glu Tyr Arg Lys Lys Trp Asp Ala Leu Val  
145 150 155 160

Ile Lys Leu Glu Val Ile Glu Arg Asp Val Val Ser Gly Ser Glu Val  
165 170 175

Leu His Trp Val Thr His Phe Pro Tyr Pro Met Tyr Ser Arg Asp Tyr  
180 185 190

Val Tyr Val Arg Arg Tyr Ser Val Asp Gln Glu Asn Asn Met Met Val  
195 200 205

Leu Val Ser Arg Ala Val Glu His Pro Ser Val Pro Glu Ser Pro Glu

210 215 220

Phe Val Arg Val Arg Ser Tyr Glu Ser Gln Met Val Ile Arg Pro His  
225 230 235 240

Lys Ser Phe Asp Glu Asn Gly Phe Asp Tyr Leu Leu Thr Tyr Ser Asp  
245 250 255

Asn Pro Gln Thr Val Phe Pro Arg Tyr Cys Val Ser Trp Met Val Ser  
260 265 270

Ser Gly Met Pro Asp Phe Leu Glu Lys Leu His Met Ala Thr Leu Lys  
275 280 285

Ala Lys Asn Met Glu Ile Lys Val Lys Asp Tyr Ile Ser Ala Lys Pro  
290 295 300

Leu Glu Met Ser Ser Glu Ala Lys Ala Thr Ser Gln Ser Ser Glu Arg  
305 310 315 320

Lys Asn Glu Gly Ser Cys Gly Pro Ala Arg Ile Glu Tyr Ala  
325 330

<210> 1575

<211> 335

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (125)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (218)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (219)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (268)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1575



Pro Ser Ala Pro Arg Ala Leu Thr Leu Gln Arg Arg Lys Ile Gly Arg  
1 5 10 15

Arg Gly Gln Ala Leu Met Leu Val Ser Gly Arg Arg Arg Leu Leu Thr  
20 25 30

Val Leu Leu Gln Ala Gln Lys Trp Pro Phe Gln Pro Ser Arg Asp Met  
35 40 45

Arg Leu Val Gln Phe Arg Ala Pro His Leu Val Gly Pro His Leu Gly  
50 55 60

Leu Glu Thr Gly Asn Gly Gly Gly Val Ile Asn Leu Asn Ala Phe Asp  
65 70 75 80

Pro Thr Leu Pro Lys Thr Met Thr Gln Phe Leu Glu Gln Gly Glu Ala  
85 90 95

Thr Leu Ser Val Ala Arg Arg Ala Leu Ala Ala Gln Leu Pro Val Leu  
100 105 110

Pro Arg Ser Glu Val Thr Phe Leu Ala Pro Val Thr Xaa Pro Asp Lys  
115 120 125

Val Val Cys Val Gly Met Asn Tyr Val Asp His Cys Lys Glu Gln Asn  
130 135 140

Val Pro Val Pro Lys Glu Pro Ile Ile Phe Ser Lys Phe Ala Ser Ser  
145 150 155 160

Ile Val Gly Pro Tyr Asp Glu Val Val Leu Pro Pro Gln Ser Gln Glu  
165 170 175

Val Asp Trp Glu Val Glu Leu Ala Val Val Ile Gly Lys Lys Gly Lys  
180 185 190

His Ile Lys Ala Thr Asp Ala Met Ala His Val Ala Gly Phe Thr Val  
195 200 205

Ala His Asp Val Ser Ala Arg Asp Trp Xaa Xaa Arg Arg Asn Gly Lys  
210 215 220

Gln Trp Leu Leu Gly Lys Thr Phe Asp Thr Phe Cys Pro Leu Gly Pro  
225 230 235 240

Ala Leu Val Thr Lys Asp Ser Val Ala Asp Pro His Asn Leu Lys Ile  
245 250 255

Cys Cys Arg Val Asn Gly Glu Val Val Gln Ser Xaa Asn Thr Asn Gln  
260 265 270

Met Val Phe Lys Thr Glu Asp Leu Ile Ala Trp Val Ser Gln Phe Val  
275 280 285

Thr Phe Tyr Pro Gly Asp Val Ile Leu Thr Gly Thr Pro Pro Gly Val  
290 295 300

Gly Val Phe Arg Lys Pro Pro Val Phe Leu Lys Lys Gly Asp Glu Val  
305 310 315 320

Gln Cys Glu Ile Glu Glu Leu Gly Val Ile Ile Asn Lys Val Val  
325 330 335

<210> 1576

<211> 113

<212> PRT

<213> Homo sapiens

<400> 1576

Ile Pro Glu Asp Pro His Ile Asp Glu Ser Lys Ala Lys His Gln Ala  
1 5 10 15

Ile Ile Met Ser Thr Ser Leu Arg Val Ser Pro Ser Ile His Gly Tyr  
20 25 30

His Phe Asp Thr Ala Ser Arg Lys Lys Ala Val Gly Asn Ile Phe Glu  
35 40 45

Asn Thr Asp Gln Glu Ser Leu Glu Arg Leu Phe Arg Asn Ser Gly Asp  
50 55 60

Lys Lys Ala Glu Glu Arg Ala Lys Ile Ile Phe Ala Ile Asp Gln Asp  
65 70 75 80

Val Glu Glu Lys Thr Arg Ala Leu Met Ala Leu Lys Lys Arg Thr Lys  
85 90 95

Asp Lys Leu Phe Gln Phe Leu Lys Leu Arg Lys Tyr Ser Ile Lys Val  
100 105 110

His

<210> 1577

<211> 212

<212> PRT

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (5)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1577

Gly Ala Ser Trp Xaa Ala Leu Thr Ala Ala Ser Ala Pro Gly Pro Trp  
1 5 10 15

Pro Leu Ser Gly Met Ala Cys Gly Ala Thr Leu Lys Arg Pro Met Glu  
20 25 30

Phe Glu Ala Ala Leu Leu Ser Pro Gly Ser Pro Lys Arg Arg Arg Cys  
35 40 45

Ala Pro Leu Pro Gly Pro Thr Pro Gly Leu Arg Pro Pro Asp Ala Glu  
50 55 60

Pro Pro Pro Pro Phe Gln Thr Gln Thr Pro Pro Gln Ser Leu Gln Gln  
65 70 75 80

Pro Ala Pro Pro Gly Ser Glu Arg Arg Leu Pro Thr Pro Glu Gln Ile  
85 90 95

Phe Gln Asn Ile Lys Gln Glu Tyr Ser Arg Tyr Gln Arg Trp Arg His  
100 105 110

Leu Glu Val Val Leu Asn Gln Ser Glu Ala Cys Ala Ser Glu Ser Gln  
115 120 125

Pro His Ser Ser Ala Leu Thr Ala Pro Ser Ser Pro Gly Ser Ser Trp  
130 135 140

Met Lys Lys Asp Gln Pro Thr Phe Thr Leu Arg Gln Val Gly Ile Ile  
145 150 155 160

Cys Glu Arg Leu Leu Lys Asp Tyr Glu Asp Lys Ile Arg Glu Glu Tyr  
165 170 175

Glu Gln Ile Leu Asn Thr Lys Leu Ala Glu Gln Tyr Glu Ser Phe Val  
180 185 190

Lys Phe Thr His Asp Gln Ile Met Arg Arg Tyr Gly Thr Arg Pro Thr  
195 200 205

Ser Tyr Val Ser  
210

&lt;210&gt; 1578

&lt;211&gt; 393

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (209)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1578

Arg Arg Arg Arg Glu Ala Gln Glu Lys Arg Tyr Tyr Tyr Asp Leu Asp  
1 5 10 15

Asp Ser Tyr Asp Glu Ser Asp Glu Glu Glu Val Arg Ala His Leu Arg  
20 25 30

Cys Val Ala Glu Gln Pro Pro Leu Lys Leu Asp Thr Ser Ser Glu Lys  
35 40 45

Leu Glu Phe Leu Gln Leu Phe Gly Leu Thr Thr Gln Gln Gln Lys Glu  
50 55 60

Glu Leu Val Ala Gln Lys Arg Arg Lys Arg Arg Arg Met Leu Arg Glu  
65 70 75 80

Arg Ser Pro Ser Pro Pro Thr Ile Gln Ser Lys Arg Gln Thr Pro Ser  
85 90 95

Pro Arg Leu Ala Leu Ser Thr Arg Tyr Ser Pro Asp Glu Met Asn Asn  
100 105 110

Ser Pro Asn Phe Glu Glu Lys Lys Lys Phe Leu Thr Ile Phe Asn Leu  
115 120 125

Thr His Ile Ser Ala Glu Lys Arg Lys Asp Lys Glu Arg Leu Val Glu  
130 135 140

Met Leu Arg Ala Met Lys Gln Lys Ala Leu Ser Ala Ala Val Ala Asp  
145 150 155 160

Ser Leu Thr Asn Ser Pro Arg Asp Ser Pro Ala Val Ser Leu Ser Glu  
165 170 175

Pro Ala Thr Gln Gln Ala Ser Leu Asp Val Glu Lys Pro Val Gly Val  
180 185 190

Ala Ala Ser Leu Ser Asp Ile Pro Lys Ala Ala Asp Leu Gly Ser Trp  
195 200 205

Xaa Gln Val Arg Pro Gln Glu Leu Ser Arg Val Gln Glu Leu Ala Pro  
210 215 220

Ala Ser Gly Glu Lys Gly Gln Ala Glu Arg Gly Pro Trp Arg Gln Lys  
225 230 235 240

Glu Ser Glu His Ala Ser Leu Tyr Pro Gly Arg Cys Thr Gln Gly His  
245 250 255

Ser Cys Ala Ala Val Pro Gln His Gln Trp Glu Glu Gln Ala Val Gly  
260 265 270

Ala Leu Cys Gly Arg Arg Val Cys Thr Ser Val Pro Arg Val Gln Cys  
275 280 285

Cys Ser Pro Pro Arg Arg Pro Cys Arg Ser Ile Lys Gly Ala Trp Leu  
290 295 300

Cys Cys Leu Gln Ser Arg Thr Thr Arg Leu Thr Arg Pro Ser Thr Thr  
305 310 315 320

Thr Phe Leu Ser Cys Ser Pro Pro Ala Ala Pro Leu His Pro Ser Thr  
325 330 335

Met Gly Ser Arg Ser Pro Pro Leu Gln Gly Arg Ala Pro Gln Pro Arg  
340 345 350

Ser Trp Thr Gly Thr Arg Arg Arg Arg Lys Arg Arg Met Met Lys Met  
355 360 365

Glu Lys Met Arg Arg Lys Ser Pro Ser Ala Ser Gly Lys Gly Ser Arg  
370 375 380

Pro Phe Leu Lys Leu Thr Arg Asn Thr  
385 390

<210> 1579

<211> 39

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1579

Gln Ala Xaa Thr Thr Leu Thr Lys Gly Xaa Lys Ser Trp Ser Ser Thr  
 1 5 10 15

Ala Val Ala Ala Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn  
 20 25 30

Ser Ala Arg Gly Arg Arg Asn  
 35

&lt;210&gt; 1580

&lt;211&gt; 286

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (171)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (237)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1580

Pro Thr Arg Pro Pro Thr Arg Pro Pro Thr Arg Pro Val Pro Ala Ser  
 1 5 10 15

Glu Ser Ala Val Val Val Gln Thr Glu Cys Ser Leu Leu Phe Val Trp  
 20 25 30

Leu Arg Phe His Ala Arg Arg Trp Leu Arg Met Ser Ser Ser His Phe  
 35 40 45

Ala Ser Arg His Arg Lys Asp Ile Ser Thr Glu Met Ile Arg Thr Lys  
 50 55 60

Ile Ala His Arg Lys Ser Leu Ser Gln Lys Glu Asn Arg His Lys Glu  
 65 70 75 80

Tyr Glu Arg Asn Arg His Phe Gly Leu Lys Asp Val Asn Ile Pro Thr  
 85 90 95

Leu Glu Gly Arg Ile Leu Val Glu Leu Asp Glu Thr Ser Gln Gly Leu  
 100 105 110

Val Pro Glu Lys Thr Asn Val Lys Pro Arg Ala Met Lys Thr Ile Leu  
 115 120 125

Gly Asp Gln Arg Lys Gln Met Leu Gln Lys Tyr Lys Glu Glu Lys Gln  
130 135 140

Leu Gln Lys Leu Lys Glu Gln Arg Glu Lys Ala Lys Arg Gly Ile Phe  
145 150 155 160

Lys Val Gly Arg Tyr Arg Pro Asp Met Pro Xaa Phe Leu Leu Ser Asn  
165 170 175

Gln Asn Ala Val Lys Ala Glu Pro Lys Lys Ala Ile Pro Ser Ser Val  
180 185 190

Arg Ile Thr Arg Ser Lys Ala Lys Asp Gln Met Glu Gln Thr Lys Ile  
195 200 205

Asp Asn Glu Ser Asp Val Arg Ala Ile Arg Pro Gly Pro Arg Gln Thr  
210 215 220

Ser Glu Lys Lys Val Ser Asp Lys Glu Lys Lys Val Xaa Gln Pro Val  
225 230 235 240

Met Pro Thr Ser Leu Arg Met Thr Arg Ser Ala Thr Gln Ala Ala Lys  
245 250 255

Gln Val Pro Arg Thr Val Ser Ser Thr Thr Ala Arg Lys Pro Val Thr  
260 265 270

Arg Ala Ala Asn Glu Asn Gly Thr Arg Arg Lys Gly Ala Lys  
275 280 285

<210> 1581

<211> 276

<212> PRT

<213> Homo sapiens

<400> 1581

Asp Arg Arg Gly Ile Gly Ile Met Ala Ala Ala Leu Phe Val Leu Leu  
1 5 10 15

Gly Phe Ala Leu Leu Gly Thr His Gly Ala Ser Gly Ala Ala Gly Thr  
20 25 30

Val Phe Thr Thr Val Glu Asp Leu Gly Ser Lys Ile Leu Leu Thr Cys  
35 40 45

Ser Leu Asn Asp Ser Ala Thr Glu Val Thr Gly His Arg Trp Leu Lys  
50 55 60

Gly Gly Val Val Leu Lys Glu Asp Ala Leu Pro Gly Gln Lys Thr Glu  
65 70 75 80

Phe Lys Val Asp Ser Asp Asp Gln Trp Gly Glu Tyr Ser Cys Val Phe  
85 90 95

Leu Pro Glu Pro Met Gly Thr Ala Asn Ile Gln Leu His Gly Pro Pro  
100 105 110

Arg Val Lys Ala Val Lys Ser Ser Glu His Ile Asn Glu Gly Glu Thr  
115 120 125

Ala Met Leu Val Cys Lys Ser Glu Ser Val Pro Pro Val Thr Asp Trp  
130 135 140

Ala Trp Tyr Lys Ile Thr Asp Ser Glu Asp Lys Ala Leu Met Asn Gly  
145 150 155 160

Ser Glu Ser Arg Phe Phe Val Ser Ser Ser Gln Gly Arg Ser Glu Leu  
165 170 175

His Ile Glu Asn Leu Asn Met Glu Ala Asp Pro Gly Gln Tyr Arg Cys  
180 185 190

Asn Gly Thr Ser Ser Lys Gly Ser Asp Gln Ala Ile Ile Thr Leu Arg  
195 200 205

Val Arg Ser His Leu Ala Ala Leu Trp Pro Phe Leu Gly Ile Val Ala  
210 215 220

Glu Val Leu Val Leu Val Thr Ile Ile Phe Ile Tyr Glu Lys Arg Arg  
225 230 235 240

Lys Pro Glu Asp Val Leu Asp Asp Asp Asp Ala Gly Ser Ala Pro Leu  
245 250 255

Lys Ser Ser Gly Gln His Gln Asn Asp Lys Gly Lys Asn Val Arg Gln  
260 265 270

Arg Asn Ser Ser  
275

<210> 1582  
<211> 476  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE



<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (136)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (271)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1582

Thr Ile Ser Phe Pro Gly Arg Xaa Leu Asp Lys Phe Ile Lys Phe Phe  
1 5 10 15

Ala Leu Lys Thr Val Gln Val Ile Val Gln Ala Arg Leu Gly Glu Lys  
20 25 30

Ile Cys Thr Arg Ser Ser Ser Ser Pro Thr Gly Ser Asp Trp Phe Asn  
35 40 45

Leu Ala Ile Lys Asp Ile Pro Glu Val Thr His Glu Ala Lys Lys Ala  
50 55 60

Leu Ala Gly Gln Leu Pro Ala Val Gly Arg Ser Met Cys Val Glu Ile  
65 70 75 80

Ser Leu Lys Thr Ser Glu Gly Asp Ser Met Glu Leu Glu Ile Trp Cys  
85 90 95

Leu Glu Met Asn Glu Lys Cys Asp Lys Glu Ile Lys Val Ser Tyr Thr  
100 105 110

Val Tyr Asn Arg Leu Ser Leu Leu Leu Lys Ser Leu Leu Ala Ile Thr  
115 120 125

Arg Val Thr Pro Ala Tyr Arg Xaa Ser Arg Lys Gln Gly His Glu Tyr  
130 135 140

Val Ile Leu Tyr Arg Ile Tyr Phe Gly Glu Val Gln Leu Ser Gly Leu  
145 150 155 160

Gly Glu Gly Phe Gln Thr Val Arg Val Gly Thr Val Gly Thr Pro Val  
165 170 175

Gly Thr Ile Thr Leu Ser Cys Ala Tyr Arg Ile Asn Leu Ala Phe Met  
180 185 190

Ser Thr Arg Gln Phe Glu Arg Thr Pro Pro Ile Met Gly Ile Ile Ile

195                      200                      205

Asp His Phe Val Asp Arg Pro Tyr Pro Ser Ser Ser Pro Met His Pro  
210                      215                      220

Cys Asn Tyr Arg Thr Ala Gly Glu Asp Thr Gly Val Ile Tyr Pro Ser  
225                      230                      235                      240

Val Glu Asp Ser Gln Glu Val Cys Thr Thr Ser Phe Ser Thr Ser Pro  
245                      250                      255

Pro Ser Gln Leu Met Val Pro Gly Lys Glu Gly Gly Val Pro Xaa Ala  
260                      265                      270

Pro Asn Gln Pro Val His Gly Thr Gln Ala Asp Gln Glu Arg Leu Ala  
275                      280                      285

Thr Cys Thr Pro Ser Asp Arg Thr His Cys Ala Ala Thr Pro Ser Ser  
290                      295                      300

Ser Glu Asp Thr Glu Thr Val Ser Asn Ser Ser Glu Gly Arg Ala Ser  
305                      310                      315                      320

Pro His Asp Val Leu Glu Thr Ile Phe Val Arg Lys Val Gly Ala Phe  
325                      330                      335

Val Asn Lys Pro Ile Asn Gln Val Thr Leu Thr Ser Leu Asp Ile Pro  
340                      345                      350

Phe Ala Met Phe Ala Pro Lys Asn Leu Glu Leu Glu Asp Thr Asp Pro  
355                      360                      365

Met Val Asn Pro Pro Asp Ser Pro Glu Thr Glu Ser Pro Leu Gln Gly  
370                      375                      380

Ser Leu His Ser Asp Gly Ser Ser Gly Gly Ser Ser Gly Asn Thr His  
385                      390                      395                      400

Asp Asp Phe Val Met Ile Asp Phe Lys Pro Ala Phe Ser Lys Asp Asp  
405                      410                      415

Ile Leu Pro Met Asp Leu Gly Thr Phe Tyr Arg Glu Phe Gln Asn Pro  
420                      425                      430

Pro Gln Leu Ser Ser Leu Ser Ile Asp Ile Gly Ala Gln Ser Met Ala  
435                      440                      445

Glu Asp Leu Asp Ser Leu Pro Glu Lys Leu Ala Val His Glu Lys Asn  
450                      455                      460

Val Arg Glu Phe Asp Ala Phe Val Glu Thr Leu Gln

465

470

475

&lt;210&gt; 1583

&lt;211&gt; 569

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (34)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (188)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (291)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (345)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (346)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (552)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (553)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (554)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1583

Gly Xaa Lys Ser Trp Cys Ser Thr Ala Val Ala Ala Ala Leu Glu Leu  
 1 5 10 15

Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Val Leu Ala Val Val  
 20 25 30

Ala Xaa Val Leu Lys Leu Gly Asn Ile Glu Phe Lys Pro Glu Ser Arg  
 35 40 45

Val Asn Gly Leu Asp Glu Ser Lys Ile Lys Asp Lys Asn Glu Leu Lys  
 50 55 60

Glu Ile Cys Glu Leu Thr Gly Ile Asp Gln Ser Val Leu Glu Arg Ala  
 65 70 75 80

Phe Ser Phe Arg Thr Val Glu Ala Lys Gln Glu Lys Val Ser Thr Thr  
 85 90 95

Leu Asn Val Ala Gln Ala Tyr Tyr Ala Arg Asp Ala Leu Ala Lys Asn  
 100 105 110

Leu Tyr Ser Arg Leu Phe Ser Trp Leu Val Asn Arg Ile Asn Glu Ser  
 115 120 125

Ile Lys Ala Gln Thr Lys Val Arg Lys Lys Val Met Gly Val Leu Asp  
 130 135 140

Ile Tyr Gly Phe Glu Ile Phe Glu Asp Asn Ser Phe Glu Gln Phe Ile  
 145 150 155 160

Ile Asn Tyr Cys Asn Glu Lys Leu Gln Gln Ile Phe Ile Glu Leu Thr  
 165 170 175

Leu Lys Glu Glu Gln Glu Glu Tyr Ile Arg Glu Xaa Ile Glu Trp Thr  
 180 185 190

His Ile Asp Tyr Phe Asn Asn Ala Ile Ile Cys Asp Leu Ile Glu Asn  
 195 200 205

Asn Thr Asn Gly Ile Leu Ala Met Leu Asp Glu Glu Cys Leu Arg Pro  
 210 215 220

Gly Thr Val Thr Asp Glu Thr Phe Leu Glu Lys Leu Asn Gln Val Cys  
 225 230 235 240

Ala Thr His Gln His Phe Glu Ser Arg Met Ser Lys Cys Ser Arg Phe  
 245 250 255

Leu Asn Asp Thr Ser Leu Pro His Ser Cys Phe Arg Ile Gln His Tyr  
260 265 270

Ala Gly Lys Val Leu Tyr Gln Val Glu Gly Phe Val Asp Lys Asn Asn  
275 280 285

Asp Leu Xaa Tyr Arg Asp Leu Ser Gln Ala Met Trp Lys Ala Ser His  
290 295 300

Ala Leu Ile Lys Ser Leu Phe Pro Glu Gly Asn Pro Ala Lys Ile Asn  
305 310 315 320

Leu Lys Arg Pro Pro Thr Ala Gly Ser Gln Phe Lys Ala Ser Val Ala  
325 330 335

Thr Leu Met Lys Asn Leu Gln Thr Xaa Xaa Pro Asn Tyr Ile Arg Cys  
340 345 350

Ile Lys Pro Asn Asp Lys Lys Ala Ala His Ile Phe Asn Glu Ala Leu  
355 360 365

Val Cys His Gln Ile Arg Tyr Leu Gly Leu Leu Glu Asn Val Arg Val  
370 375 380

Arg Arg Ala Gly Tyr Ala Phe Arg Gln Ala Tyr Glu Pro Cys Leu Glu  
385 390 395 400

Arg Tyr Lys Met Leu Cys Lys Gln Thr Trp Pro His Trp Lys Gly Pro  
405 410 415

Ala Arg Ser Gly Val Glu Val Leu Phe Asn Glu Leu Glu Ile Pro Val  
420 425 430

Glu Glu Tyr Ser Phe Gly Arg Ser Lys Ile Phe Ile Arg Asn Pro Arg  
435 440 445

Thr Leu Phe Lys Leu Glu Asp Leu Arg Lys Gln Arg Leu Glu Asp Leu  
450 455 460

Ala Thr Leu Ile Gln Lys Ile Tyr Arg Gly Trp Lys Cys Arg Thr His  
465 470 475 480

Phe Leu Leu Met Lys Lys Ser Gln Ile Val Ile Ala Ala Trp Tyr Arg  
485 490 495

Arg Tyr Ala Gln Gln Lys Arg Tyr Gln Gln Thr Lys Ser Ser Ala Leu  
500 505 510

Val Ile Gln Ser Tyr Ile Arg Gly Trp Lys Ala Arg Lys Ile Leu Arg  
515 520 525

Glu Leu Lys His Gln Lys Arg Cys Lys Glu Ala Val Thr Thr Ile Ala  
530 535 540

Ala Tyr Trp His Gly Thr Gln Xaa Xaa Xaa Lys Asn Gln Glu Ile Leu  
545 550 555 560

Gln Ser Gln Cys Trp Lys Arg Lys Ser  
565

<210> 1584

<211> 267

<212> PRT

<213> Homo sapiens

<400> 1584

Arg Val Asp Pro Arg Val Arg Ile Leu Gly Ala Gly Glu Glu Ala Gly  
1 5 10 15

Ser Pro Ser Leu His Val Arg Asp Leu Thr Val Glu Met Ala Ala Gln  
20 25 30

Lys Ile Asn Glu Gly Leu Glu His Leu Ala Lys Ala Glu Lys Tyr Leu  
35 40 45

Lys Thr Gly Phe Leu Lys Trp Lys Pro Asp Tyr Asp Ser Ala Ala Ser  
50 55 60

Glu Tyr Gly Lys Ala Ala Val Ala Phe Lys Asn Ala Lys Gln Phe Glu  
65 70 75 80

Gln Ala Lys Asp Ala Cys Leu Arg Glu Ala Val Ala His Glu Asn Asn  
85 90 95

Arg Ala Leu Phe His Ala Ala Lys Ala Tyr Glu Gln Ala Gly Met Met  
100 105 110

Leu Lys Glu Met Gln Lys Leu Pro Glu Ala Val Gln Leu Ile Glu Lys  
115 120 125

Ala Ser Met Met Tyr Leu Glu Asn Gly Thr Pro Asp Thr Ala Ala Met  
130 135 140

Ala Leu Glu Arg Ala Gly Lys Leu Ile Glu Asn Val Asp Pro Glu Lys  
145 150 155 160

Ala Val Gln Leu Tyr Gln Gln Thr Ala Asn Val Phe Glu Asn Glu Glu  
165 170 175

Arg Leu Arg Gln Ala Val Glu Leu Leu Gly Lys Ala Ser Arg Leu Leu  
180 185 190

Val Arg Gly Arg Arg Phe Asp Glu Ala Ala Leu Ser Ile Gln Lys Glu  
195 200 205

Lys Asn Ile Tyr Lys Glu Ile Glu Asn Tyr Pro Thr Cys Tyr Lys Lys  
210 215 220

Thr Ile Ala Gln Val Leu Val His Leu His Arg Asn Asp Tyr Val Ala  
225 230 235 240

Ala Glu Arg Cys Val Arg Glu Ser Tyr Ser Ile Pro Gly Phe Asn Gly  
245 250 255

Ser Glu Asp Cys Ala Ala Leu Gly Thr Ala Ser  
260 265

<210> 1585

<211> 214

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1585

Xaa Xaa Xaa Gln Thr Ser Pro Val Leu Cys Asn Xaa Pro Arg Arg His  
1 5 10 15

Arg Ala Pro Trp Pro Ser Tyr Asn Asp Glu Asp Ile Tyr Leu Phe Asn  
20 25 30

Ser Ser His Ser Asp Gly Ala Gln Tyr Val Lys Arg Tyr Lys Gly His  
35 40 45

Arg Asn Asn Ala Thr Val Lys Gly Val Asn Phe Tyr Gly Pro Lys Ser  
50 55 60

Glu Phe Val Val Ser Gly Ser Asp Cys Gly His Ile Phe Leu Trp Glu  
65 70 75 80

Lys Ser Ser Cys Gln Ile Ile Gln Phe Met Glu Gly Asp Lys Gly Gly  
85 90 95

Val Val Asn Cys Leu Glu Pro His Pro His Leu Pro Val Leu Ala Thr  
100 105 110

Ser Gly Leu Asp His Asp Val Lys Ile Trp Ala Pro Thr Ala Glu Ala  
115 120 125

Ser Thr Glu Leu Thr Gly Leu Lys Asp Val Ile Lys Lys Asn Lys Arg  
130 135 140

Glu Arg Asp Glu Asp Ser Leu His Gln Thr Asp Leu Phe Asp Ser His  
145 150 155 160

Met Leu Trp Phe Leu Met His His Leu Arg Gln Arg Arg His His Arg  
165 170 175

Arg Trp Arg Glu Pro Gly Val Gly Ala Thr Asp Ala Asp Ser Asp Glu  
180 185 190

Ser Pro Ser Ser Ser Asp Thr Ser Asp Glu Glu Glu Gly Pro Asp Arg  
195 200 205

Val Gln Cys Met Pro Ser  
210

<210> 1586

<211> 74

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1586

Gln Ile Thr Pro Asn Lys Xaa Gly His Arg Glu Ser Ala Arg Arg Pro



1 5 10 15  
Val Ile Gln Gly Pro Phe Leu Leu Asp Val Lys Glu Ser Trp Val Lys  
20 25 30  
Cys Gly Cys Asn Leu Asn Gln Leu Val Leu Val Ile Cys Phe Cys Pro  
35 40 45  
Leu Cys Phe Leu Leu Ser Asn Ala Lys Cys Val Phe Cys Ser His Glu  
50 55 60  
Leu Lys His Lys Lys Met His Glu Thr Leu  
65 70

<210> 1587

<211> 412

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (296)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1587

Ser Gly Thr His His Phe Ser Cys Val Leu Gly Ser Phe Arg Val Ser  
1 5 10 15  
Ala Met Phe Pro Arg Val Ser Thr Phe Leu Pro Leu Arg Pro Leu Ser  
20 25 30  
Arg His Pro Leu Ser Ser Gly Ser Pro Glu Thr Ser Ala Ala Ala Ile  
35 40 45  
Met Leu Leu Thr Val Arg His Gly Thr Val Arg Tyr Arg Ser Ser Ala  
50 55 60  
Leu Leu Ala Arg Thr Lys Asn Asn Ile Gln Arg Tyr Phe Gly Thr Asn  
65 70 75 80  
Ser Val Ile Cys Ser Lys Lys Asp Lys Gln Ser Val Arg Thr Glu Glu  
85 90 95  
Thr Ser Lys Glu Thr Ser Glu Ser Gln Asp Ser Glu Lys Glu Asn Thr  
100 105 110  
Lys Lys Asp Leu Leu Gly Ile Ile Lys Gly Met Lys Val Glu Leu Ser  
115 120 125

Thr Val Asn Val Arg Thr Thr Lys Pro Pro Lys Arg Arg Pro Leu Lys  
130 135 140

Ser Leu Glu Ala Thr Leu Gly Arg Leu Arg Arg Ala Thr Glu Tyr Ala  
145 150 155 160

Pro Lys Lys Arg Ile Glu Pro Leu Ser Pro Glu Leu Val Ala Ala Ala  
165 170 175

Ser Ala Val Ala Asp Ser Leu Pro Phe Asp Lys Gln Thr Thr Lys Ser  
180 185 190

Glu Leu Leu Ser Gln Leu Gln Gln His Glu Glu Glu Ser Arg Ala Gln  
195 200 205

Arg Asp Ala Lys Arg Pro Lys Ile Ser Phe Ser Asn Ile Ile Ser Asp  
210 215 220

Met Lys Val Ala Arg Ser Ala Thr Ala Arg Val Arg Ser Arg Pro Glu  
225 230 235 240

Leu Arg Ile Gln Phe Asp Glu Gly Tyr Asp Asn Tyr Pro Gly Gln Glu  
245 250 255

Lys Thr Asp Asp Leu Lys Lys Arg Lys Asn Ile Phe Thr Gly Lys Arg  
260 265 270

Leu Asn Ile Phe Asp Met Met Ala Val Thr Lys Glu Ala Pro Glu Thr  
275 280 285

Asp Thr Ser Pro Ser Leu Trp Xaa Val Glu Phe Ala Lys Gln Leu Ala  
290 295 300

Thr Val Asn Glu Gln Pro Leu Gln Asn Gly Phe Glu Glu Leu Ile Gln  
305 310 315 320

Trp Thr Lys Glu Gly Lys Leu Trp Glu Phe Pro Ile Asn Asn Glu Ala  
325 330 335

Gly Phe Asp Asp Asp Gly Ser Glu Phe His Glu His Ile Phe Leu Glu  
340 345 350

Lys His Leu Glu Ser Phe Pro Lys Gln Gly Pro Ile Arg His Phe Met  
355 360 365

Glu Leu Val Thr Cys Gly Leu Ser Lys Asn Pro Tyr Leu Ser Val Lys  
370 375 380

Gln Lys Val Glu His Ile Glu Trp Phe Arg Asn Tyr Phe Asn Glu Lys  
385 390 395 400

Lys Asp Ile Leu Lys Glu Ser Asn Ile Gln Phe Asn  
405 410

<210> 1588  
<211> 44  
<212> PRT  
<213> Homo sapiens

<400> 1588  
Ala Ile His Ser Leu Gln Gln Phe Asp Lys Ile Tyr Phe Cys Glu Gln  
1 5 10 15

Lys Leu Arg His Leu His Phe Leu Pro Met Trp Ser Leu Gln Thr Trp  
20 25 30

Glu Thr Ile His Glu Tyr Leu Tyr Cys Met Val Ile  
35 40

<210> 1589  
<211> 214  
<212> PRT  
<213> Homo sapiens

<400> 1589  
Val Gly Glu Thr Gln His Ala Leu Arg Pro Leu Cys Lys Gln His Pro  
1 5 10 15

Val Pro Pro Ser Ser Pro Arg Pro Ser Glu Glu Met Val Lys Met Val  
20 25 30

Leu Ser Arg Pro Cys His Pro Asp Asp Gln Phe Thr Thr Ser Ile Leu  
35 40 45

Arg His Trp Cys Met Lys His Asp Glu Leu Leu Ala Glu His Ile Lys  
50 55 60

Ser Leu Leu Ile Lys Asn Asn Ser Leu Pro Arg Lys Arg Gln Ser Leu  
65 70 75 80

Arg Ser Ser Ser Ser Lys Leu Ala Gln Leu Thr Leu Glu Gln Ile Leu  
85 90 95

Glu His Leu Asp Asn Leu Arg Leu Asn Leu Thr Asn Thr Lys Gln Asn  
100 105 110

Phe Phe Ser Gln Thr Pro Ile Leu Gln Ala Leu Gln His Val Gln Ala  
115 120 125

Ser Cys Asp Glu Ala His Lys Met Lys Phe Ser Asp Leu Phe Ser Leu  
 130 135 140

Ala Glu Glu Tyr Glu Asp Ser Ser Thr Lys Pro Pro Lys Ser Arg Arg  
 145 150 155 160

Lys Ala Ala Leu Ser Ser Pro Arg Ser Arg Lys Asn Ala Thr Gln Pro  
 165 170 175

Pro Asn Ala Glu Glu Glu Ser Gly Ser Ser Ser Ala Ser Glu Glu Glu  
 180 185 190

Asp Thr Lys Pro Lys Pro Thr Lys Arg Lys Arg Lys Gly Ser Ser Ala  
 195 200 205

Val Gly Ser Asp Ser Asp  
 210

<210> 1590

<211> 200

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1590

Lys Met His Ile Leu His Ala Asp Ile Lys Pro Asp Asn Ile Leu Val  
 1 5 10 15

Asn Glu Ser Lys Thr Ile Leu Lys Leu Cys Xaa Phe Gly Ser Ala Ser  
 20 25 30

His Val Ala Asp Asn Asp Ile Thr Pro Tyr Leu Val Ser Arg Phe Tyr  
 35 40 45

Arg Ala Pro Glu Ile Ile Ile Gly Lys Ser Tyr Asp Tyr Gly Ile Asp  
 50 55 60

Met Trp Ser Val Gly Cys Thr Leu Tyr Glu Leu Tyr Thr Gly Lys Ile  
 65 70 75 80

Leu Phe Pro Gly Lys Thr Asn Asn His Met Leu Lys Leu Ala Met Asp  
 85 90 95

Leu Lys Gly Lys Met Pro Asn Lys Met Ile Arg Lys Gly Val Phe Lys

100	105	110
Asp Gln His Phe Asp Gln Asn Leu Asn Phe Met Tyr Ile Glu Val Asp		
115	120	125
Lys Val Thr Glu Arg Glu Lys Val Thr Val Met Ser Thr Ile Asn Pro		
130	135	140
Thr Lys Asp Leu Leu Ala Asp Leu Ile Gly Cys Gln Arg Leu Pro Glu		
145	150	155
Asp Gln Arg Lys Lys Val His Gln Leu Lys Asp Leu Leu Asp Gln Ile		
165	170	175
Leu Met Leu Asp Pro Ala Lys Arg Ile Ser Ile Asn Gln Ala Leu Gln		
180	185	190
His Ala Phe Ile Gln Glu Lys Ile		
195	200	

&lt;210&gt; 1591

&lt;211&gt; 115

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1591

Val Thr Leu Ala Arg Ser Leu Gln Ser Arg Pro Val Ala Met Ser Ala
1                      5                      10                      15

Asp Val Thr Ser Ser Leu Ala Ala Phe Gly Glu Gly Trp Gly Val Arg
20                      25                      30

Glu Leu Ser Asp His Ser Ser Pro Arg Pro Leu Leu Gly Leu Ala Arg
35                      40                      45

Arg Ala Pro Arg Val Asp Pro Pro Ala Thr Gly Val Phe Ser Pro Leu
50                      55                      60

Leu Pro Pro Ser Gly Leu Met Arg Gln Arg Gly Gly Cys Gly Ala Cys
65                      70                      75                      80

Leu Gly Arg Thr Glu Leu Ser Leu Gly Lys Thr Tyr Phe Val Asn Lys
85                      90                      95

Trp Asn Thr Trp Leu Tyr Ser Lys Lys Lys Lys Lys Lys Lys Lys
100                      105                      110

Lys Ser Arg
115

&lt;210&gt; 1592

&lt;211&gt; 66

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1592

Val Cys Cys Cys Lys Lys Ser Pro Met Cys Ile Thr Asn Ser Glu Tyr  
1 5 10 15  
Phe Leu Arg Leu Lys Lys Thr Gly Val Thr Ser Arg Tyr Cys Cys Val  
20 25 30  
Met Val Thr Leu Thr Lys Arg His Gln Pro Leu Arg Val Leu Tyr Cys  
35 40 45  
Lys Ala Gln Ile Thr Phe Val Cys Tyr Thr Leu Ile Gly Glu Leu Lys  
50 55 60  
Val Ile  
65

&lt;210&gt; 1593

&lt;211&gt; 91

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1593

Glu Ser Leu Trp Ala Phe Cys Leu Ser Leu Leu Glu Arg Leu Ala Cys  
1 5 10 15  
Cys Ser Leu Leu Tyr Pro Glu Val Cys Leu Trp Asp Phe Ser Pro Val  
20 25 30  
Ala Val Glu Thr Arg Arg Pro Thr Leu Phe Glu Thr Gln Met Leu Leu  
35 40 45  
Ser Leu Ala Ser Pro Ser Leu Ser Ser Pro Asn Glu Pro Thr Phe Cys  
50 55 60  
Thr Ser Thr Arg Met Pro Gly Arg Leu Gly Pro Gln Arg Leu Leu Phe  
65 70 75 80  
Gln Asn Leu Trp Lys Pro Arg Leu Asn Val Pro  
85 90

<210> 1594

<211> 442

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1594

Leu Glu Gln Glu Leu Gly Asp Gly Trp Gly His Ser Asp Leu His Lys  
1 5 10 15

Ala Leu Leu Cys Arg Xaa Pro Pro Leu Pro Glu Pro Asp Ala Met Ser  
20 25 30

Ser Lys Gly Ser Val Val Leu Ala Tyr Ser Gly Gly Leu Asp Thr Ser  
35 40 45

Cys Ile Leu Val Trp Leu Lys Glu Gln Gly Tyr Asp Val Ile Ala Tyr  
50 55 60

Leu Ala Asn Ile Gly Gln Lys Glu Asp Phe Glu Glu Ala Arg Lys Lys  
65 70 75 80

Ala Leu Lys Leu Gly Ala Lys Lys Val Phe Ile Glu Asp Val Ser Arg  
85 90 95

Glu Phe Val Glu Glu Phe Ile Trp Pro Ala Ile Gln Ser Ser Ala Leu  
100 105 110

Tyr Glu Asp Arg Tyr Leu Leu Gly Thr Ser Leu Ala Arg Pro Cys Ile  
115 120 125

Ala Arg Lys Gln Val Glu Ile Ala Gln Arg Glu Gly Ala Lys Tyr Val  
130 135 140

Ser His Gly Ala Thr Gly Lys Gly Asn Asp Gln Val Arg Phe Glu Leu  
145 150 155 160

Ser Cys Tyr Ser Leu Ala Pro Gln Ile Lys Val Ile Ala Pro Trp Arg  
165 170 175

Met Pro Glu Phe Tyr Asn Arg Phe Lys Gly Arg Asn Asp Leu Met Glu  
180 185 190

Tyr Ala Lys Gln His Gly Ile Pro Ile Pro Val Thr Pro Lys Asn Pro  
195 200 205

Trp Ser Met Asp Glu Asn Leu Met His Ile Ser Tyr Glu Ala Gly Ile  
210 215 220

Leu Glu Asn Pro Lys Asn Gln Ala Pro Pro Gly Leu Tyr Thr Lys Thr  
225 230 235 240

Gln Asp Pro Ala Lys Ala Pro Asn Thr Pro Asp Ile Leu Glu Ile Glu  
245 250 255

Phe Lys Lys Gly Val Pro Val Lys Val Thr Asn Val Lys Asp Gly Thr  
260 265 270

Thr His Gln Thr Ser Leu Glu Leu Phe Met Tyr Leu Asn Glu Val Ala  
275 280 285

Gly Lys His Gly Val Gly Arg Ile Asp Ile Val Glu Asn Arg Phe Ile  
290 295 300

Gly Met Lys Ser Arg Gly Ile Tyr Glu Thr Pro Ala Gly Thr Ile Leu  
305 310 315 320

Tyr His Ala His Leu Asp Ile Glu Ala Phe Thr Met Asp Arg Glu Val  
325 330 335

Arg Lys Ile Lys Gln Gly Leu Gly Leu Lys Phe Ala Glu Leu Val Tyr  
340 345 350

Thr Gly Phe Trp His Ser Pro Glu Cys Glu Phe Val Arg His Cys Ile  
355 360 365

Ala Lys Ser Gln Glu Arg Val Glu Gly Lys Val Gln Val Ser Val Leu  
370 375 380

Lys Gly Gln Val Tyr Ile Leu Gly Arg Glu Ser Pro Leu Ser Leu Tyr  
385 390 395 400

Asn Glu Glu Leu Val Ser Met Asn Val Gln Gly Asp Tyr Glu Pro Thr  
405 410 415

Asp Ala Thr Gly Phe Ile Asn Ile Asn Ser Leu Arg Leu Lys Glu Tyr  
420 425 430

His Arg Leu Gln Ser Lys Val Thr Ala Lys  
435 440

&lt;210&gt; 1595

&lt;211&gt; 456

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens



&lt;400&gt; 1595

Phe Gly Thr Ser Gln Phe Leu Leu Pro Leu Pro Ala Lys Met Ser Asp  
1 5 10 15

Met Glu Asp Asp Phe Met Cys Asp Asp Glu Glu Asp Tyr Asp Leu Glu  
20 25 30

Tyr Ser Glu Asp Ser Asn Ser Glu Pro Asn Val Asp Leu Glu Asn Gln  
35 40 45

Tyr Tyr Asn Ser Lys Ala Leu Lys Glu Asp Asp Pro Lys Ala Ala Leu  
50 55 60

Ser Ser Phe Gln Lys Val Leu Glu Leu Glu Gly Glu Lys Gly Glu Trp  
65 70 75 80

Gly Phe Lys Ala Leu Lys Gln Met Ile Lys Ile Asn Phe Lys Leu Thr  
85 90 95

Asn Phe Pro Glu Met Met Asn Arg Tyr Lys Gln Leu Leu Thr Tyr Ile  
100 105 110

Arg Ser Ala Val Thr Arg Asn Tyr Ser Glu Lys Ser Ile Asn Ser Ile  
115 120 125

Leu Asp Tyr Ile Ser Thr Ser Lys Gln Met Asp Leu Leu Gln Glu Phe  
130 135 140

Tyr Glu Thr Thr Leu Glu Ala Leu Lys Asp Ala Lys Asn Asp Arg Leu  
145 150 155 160

Trp Phe Lys Thr Asn Thr Lys Leu Gly Lys Leu Tyr Leu Glu Arg Glu  
165 170 175

Glu Tyr Gly Lys Leu Gln Lys Ile Leu Arg Gln Leu His Gln Ser Cys  
180 185 190

Gln Thr Asp Asp Gly Glu Asp Asp Leu Lys Lys Gly Thr Gln Leu Leu  
195 200 205

Glu Ile Tyr Ala Leu Glu Ile Gln Met Tyr Thr Ala Gln Lys Asn Asn  
210 215 220

Lys Lys Leu Lys Ala Leu Tyr Glu Gln Ser Leu His Ile Lys Ser Ala  
225 230 235 240

Ile Pro His Pro Leu Ile Met Gly Val Ile Arg Glu Cys Gly Gly Lys  
245 250 255

Met His Leu Arg Glu Gly Glu Phe Glu Lys Ala His Thr Asp Phe Phe

260 265 270

Glu Ala Phe Lys Asn Tyr Asp Glu Ser Gly Ser Pro Arg Arg Thr Thr  
275 280 285

Cys Leu Lys Tyr Leu Val Leu Ala Asn Met Leu Met Lys Ser Gly Ile  
290 295 300

Asn Pro Phe Asp Ser Gln Glu Ala Lys Pro Tyr Lys Asn Asp Pro Glu  
305 310 315 320

Ile Leu Ala Met Thr Asn Leu Val Ser Ala Tyr Gln Asn Asn Asp Ile  
325 330 335

Thr Glu Phe Glu Lys Ile Leu Lys Thr Asn His Ser Asn Ile Met Asp  
340 345 350

Asp Pro Phe Ile Arg Glu His Ile Glu Glu Leu Leu Arg Asn Ile Arg  
355 360 365

Thr Gln Val Leu Ile Lys Leu Ile Lys Pro Tyr Thr Arg Ile His Ile  
370 375 380

Pro Phe Ile Ser Lys Glu Leu Asn Ile Asp Val Ala Asp Val Glu Ser  
385 390 395 400

Leu Leu Val Gln Cys Ile Leu Asp Asn Thr Ile His Gly Arg Ile Asp  
405 410 415

Gln Val Asn Gln Leu Leu Glu Leu Asp His Gln Lys Arg Gly Gly Ala  
420 425 430

Arg Tyr Thr Ala Leu Asp Lys Trp Thr Asn Gln Leu Asn Ser Leu Asn  
435 440 445

Gln Ala Val Val Ser Lys Leu Ala  
450 455

<210> 1596

<211> 375

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (176)

<223> xaa equals any of the naturally occurring L-amino acids

<400> 1596

Ser Phe Gly Glu Arg Ala Pro Ser Thr Arg Ser Gly Asp Pro Leu Val  
1 5 10 15

Ala Val Leu Pro Thr Arg Thr Arg Val Pro Gln Ala Ser Arg Cys Pro  
20 25 30

Ala Gly Ser Ser Cys Pro Thr Pro Gly Ala Arg Pro Pro Ala Ser Pro  
35 40 45

Gly Pro Leu Pro Arg Pro Ser Ser Arg Arg Ala Arg Ser Met Ala Pro  
50 55 60

Pro Gln Val Leu Ala Phe Gly Leu Leu Leu Ala Ala Ala Thr Ala Thr  
65 70 75 80

Phe Ala Ala Ala Gln Glu Glu Cys Val Cys Glu Asn Tyr Lys Leu Ala  
85 90 95

Val Asn Cys Phe Val Asn Asn Asn Arg Gln Cys Gln Cys Thr Ser Val  
100 105 110

Gly Ala Gln Asn Thr Val Ile Cys Ser Lys Leu Ala Ala Lys Cys Leu  
115 120 125

Val Met Lys Ala Glu Met Asn Gly Ser Lys Leu Gly Arg Arg Ala Lys  
130 135 140

Pro Glu Gly Ala Leu Gln Asn Asn Asp Gly Leu Tyr Asp Pro Asp Cys  
145 150 155 160

Asp Glu Ser Gly Leu Phe Lys Ala Lys Gln Cys Asn Gly Thr Ser Xaa  
165 170 175

Cys Trp Cys Val Asn Thr Ala Gly Val Arg Arg Thr Asp Lys Asp Thr  
180 185 190

Glu Ile Thr Cys Ser Glu Arg Val Arg Thr Tyr Trp Ile Ile Ile Glu  
195 200 205

Leu Lys His Lys Ala Arg Glu Lys Pro Tyr Asp Ser Lys Ser Leu Arg  
210 215 220

Thr Ala Leu Gln Lys Glu Ile Thr Thr Arg Tyr Gln Leu Asp Pro Lys  
225 230 235 240

Phe Ile Thr Ser Ile Leu Tyr Glu Asn Asn Val Ile Thr Ile Asp Leu  
245 250 255

Val Gln Asn Ser Ser Gln Lys Thr Gln Asn Asp Val Asp Ile Ala Asp  
260 265 270

Val Ala Tyr Tyr Phe Glu Lys Asp Val Lys Gly Glu Ser Leu Phe His  
 275 280 285

Ser Lys Lys Met Asp Leu Thr Val Asn Gly Glu Gln Leu Asp Leu Asp  
 290 295 300

Pro Gly Gln Thr Leu Ile Tyr Tyr Val Asp Glu Lys Ala Pro Glu Phe  
 305 310 315 320

Ser Met Gln Gly Leu Lys Ala Gly Val Ile Ala Val Ile Val Val Val  
 325 330 335

Val Ile Ala Val Val Ala Gly Ile Val Val Leu Val Ile Ser Arg Lys  
 340 345 350

Lys Arg Met Ala Lys Tyr Glu Lys Ala Glu Ile Lys Glu Met Gly Glu  
 355 360 365

Met His Arg Glu Leu Asn Ala  
 370 375

&lt;210&gt; 1597

&lt;211&gt; 83

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens .

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (71)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1597

Ala Leu Gly Pro Gln Ala Ser Pro Leu Gln Ser Leu Ala Ala Ser Leu  
 1 5 10 15

Asp Ala Glu Pro Ser Ser Ala Ala Val Pro Asp Gly Phe Pro Ala Gly  
 20 25 30

Pro Thr Val Ser Pro Arg Arg Leu Ala Arg Pro Pro Gly Leu Glu Glu  
 35 40 45

Ala Leu Ser Ala Leu Gly Leu Gln Gly Glu Arg Asp Thr Pro Gly Thr  
 50 55 60

Ser Ser Pro Lys Ser Trp Xaa Gly Ser Arg Glu Arg Gln Lys His Ser  
 65 70 75 80

Val Gly Glu

<210> 1598  
<211> 103  
<212> PRT  
<213> Homo sapiens

<400> 1598  
Gln Pro Glu Val Pro Asp Arg Arg Cys Val Ile His Arg Arg Arg Arg  
1 5 10 15  
Tyr Gly Ser Ser Thr Glu Ala His Ala Lys Leu Ser Thr Met Ala Ser  
20 25 30  
Ser Thr Val Pro Val Ser Ala Ala Gly Ser Ala Asn Glu Thr Pro Glu  
35 40 45  
Ile Pro Asp Asn Val Gly Asp Trp Leu Arg Gly Val Tyr Arg Phe Ala  
50 55 60  
Thr Asp Arg Asn Asp Phe Arg Arg Asn Leu Ile Leu Asn Leu Gly Leu  
65 70 75 80  
Phe Ala Ala Gly Val Trp Leu Ala Arg Asn Leu Ser Asp Ile Asp Leu  
85 90 95  
Met Ala Pro Gln Pro Gly Val  
100

<210> 1599  
<211> 154  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (125)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (135)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1599  
Arg Arg Thr Tyr Tyr Gly Lys Thr Trp Asn Cys Arg Ala Arg Tyr Leu  
1 5 10 15

Val Arg Asn Ser Arg Val Asp Pro Arg Val Arg Ala Asp Trp Gly Gly  
20 25 30

Gly Gly Leu Ala Arg Pro Gly Leu Ala Cys Gln Gly Ala Gly Gly Gly  
35 40 45

Gly Ser Ser Thr Met Ser Leu Gln Tyr Gly Ala Glu Glu Thr Pro Leu  
50 55 60

Ala Gly Ser Tyr Gly Ala Ala Asp Ser Phe Pro Lys Asp Phe Gly Tyr  
65 70 75 80

Gly Val Glu Glu Glu Glu Glu Glu Ala Ala Ala Ala Gly Gly Gly Val  
85 90 95

Gly Ala Gly Ala Gly Gly Gly Cys Gly Pro Gly Gly Ala Asp Ser Ser  
100 105 110

Lys Pro Arg Ile Leu Leu Met Gly Thr Pro Ala Gln Xaa Lys Phe Leu  
115 120 125

His Pro Glu Ser Gly Val Xaa Ile Lys Met Phe Asn Gln Arg Asp Pro  
130 135 140

Leu Phe Leu Gly Asn Tyr Gln Thr Arg Phe  
145 150

<210> 1600

<211> 108

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (24)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1600

Gly Cys Ser Phe Lys Trp Gly Leu Thr Gly Asn Val Thr Leu Ser Arg

1 5 10 15  
Asp Val Arg Glu Val Asp Pro Xaa Gln Gly Xaa Pro Gly Arg Gly Thr  
20 25 30  
Gly Cys Ala Leu Pro Gln Ser Glu Asn Leu Leu Tyr Val Val Arg Lys  
35 40 45  
Glu Gln Gly Asp Gln Ala Glu Ser Trp Ala Gly Val Glu Trp Lys Glu  
50 55 60  
Arg Arg Leu Xaa Arg Thr Gly Gly Gly Gly Pro Trp Leu Leu Leu Ser  
65 70 75 80  
Glu Met Gly Thr Thr Gly Gly Phe Glu Gln Arg Ser Ala Leu Ile Asp  
85 90 95  
Leu Tyr Phe Ala Arg Val Ile Leu Ala Ala Ile Leu  
100 105

<210> 1601  
<211> 253  
<212> PRT  
<213> Homo sapiens

<400> 1601  
Ala Pro Arg Ser Pro Arg Gly Arg Cys Gly Gly Thr Arg Ala Glu Ala  
1 5 10 15  
Ala Ala Ala Thr Trp Ala Ala Ala Gly Pro Arg Arg Arg Ala Val Arg  
20 25 30  
Met Ser Gly Trp Ala Asp Glu Arg Gly Gly Glu Gly Asp Gly Arg Ile  
35 40 45  
Tyr Val Gly Asn Leu Pro Thr Asp Val Arg Glu Lys Asp Leu Glu Asp  
50 55 60  
Leu Phe Tyr Lys Tyr Gly Arg Ile Arg Glu Ile Glu Leu Lys Asn Arg  
65 70 75 80  
His Gly Leu Val Pro Phe Ala Phe Val Arg Phe Glu Asp Pro Arg Asp  
85 90 95  
Ala Glu Asp Ala Ile Tyr Gly Arg Asn Gly Tyr Asp Tyr Gly Gln Cys  
100 105 110  
Arg Leu Arg Val Glu Phe Pro Arg Thr Tyr Gly Gly Arg Gly Gly Trp  
115 120 125

Pro Arg Gly Gly Arg Asn Gly Pro Pro Thr Arg Arg Ser Asp Phe Arg  
 130 135 140  
 Val Leu Val Ser Gly Leu Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys  
 145 150 155 160  
 Asp His Met Arg Glu Ala Gly Asp Val Cys Tyr Ala Asp Val Gln Lys  
 165 170 175  
 Asp Gly Val Gly Met Val Glu Tyr Leu Arg Lys Glu Asp Met Glu Tyr  
 180 185 190  
 Ala Leu Arg Lys Leu Asp Asp Thr Lys Phe Arg Ser His Glu Gly Glu  
 195 200 205  
 Thr Ser Tyr Ile Arg Val Tyr Pro Glu Arg Ser Thr Ser Tyr Gly Tyr  
 210 215 220  
 Ser Arg Ser Arg Ser Gly Ser Arg Gly Arg Asp Ser Pro Tyr Gln Ser  
 225 230 235 240  
 Arg Gly Ser Pro His Tyr Phe Ser Pro Phe Arg Pro Tyr  
 245 250

<210> 1602  
 <211> 310  
 <212> PRT  
 <213> Homo sapiens

<400> 1602

Pro Arg Ala Ala Arg Pro Pro Ala Met Glu Pro Gly Pro Asp Gly Pro  
 1 5 10 15  
 Ala Ala Ser Gly Pro Ala Ala Ile Arg Glu Gly Trp Phe Arg Glu Thr  
 20 25 30  
 Cys Ser Leu Trp Pro Gly Gln Ala Leu Ser Leu Gln Val Glu Gln Leu  
 35 40 45  
 Leu His His Arg Arg Ser Arg Tyr Gln Asp Ile Leu Val Phe Arg Ser  
 50 55 60  
 Lys Thr Tyr Gly Asn Val Leu Val Leu Asp Gly Val Ile Gln Cys Thr  
 65 70 75 80  
 Glu Arg Asp Glu Phe Ser Tyr Gln Glu Met Ile Ala Asn Leu Pro Leu  
 85 90 95



Cys Ser His Pro Asn Pro Arg Lys Val Leu Ile Ile Gly Gly Gly Asp  
100 105 110

Gly Gly Val Leu Arg Glu Val Val Lys His Pro Ser Val Glu Ser Val  
115 120 125

Val Gln Cys Glu Ile Asp Glu Asp Val Ile Gln Val Ser Lys Lys Phe  
130 135 140

Leu Pro Gly Met Ala Ile Gly Tyr Ser Ser Ser Lys Leu Thr Leu His  
145 150 155 160

Val Gly Asp Gly Phe Glu Phe Met Lys Gln Asn Gln Asp Ala Phe Asp  
165 170 175

Val Ile Ile Thr Asp Ser Ser Asp Pro Met Gly Pro Ala Glu Ser Leu  
180 185 190

Phe Lys Glu Ser Tyr Tyr Gln Leu Met Lys Thr Ala Leu Lys Glu Asp  
195 200 205

Gly Val Leu Cys Cys Gln Gly Glu Cys Gln Trp Leu His Leu Asp Leu  
210 215 220

Ile Lys Glu Met Arg Gln Phe Cys Gln Ser Leu Phe Pro Val Val Ala  
225 230 235 240

Tyr Ala Tyr Cys Thr Ile Pro Thr Tyr Pro Ser Gly Gln Ile Gly Phe  
245 250 255

Met Leu Cys Ser Lys Asn Pro Ser Thr Asn Phe Gln Glu Pro Val Gln  
260 265 270

Pro Leu Thr Gln Gln Gln Val Ala Gln Met Gln Leu Lys Tyr Tyr Asn  
275 280 285

Ser Asp Val His Arg Ala Ala Phe Val Leu Pro Glu Phe Ala Arg Lys  
290 295 300

Ala Leu Asn Asp Val Ser  
305 310

&lt;210&gt; 1603

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1603

Val Asn Val Ser Gly Phe Val Gln Gly Thr Cys Lys Gly Phe Gly Ser  
1 5 10 15

Met Val Arg Xaa Glu Arg Gln Glu Leu Glu Xaa Met Leu Leu Xaa Lys  
20 25 30

Ser Arg Asp Ile Asn Phe Gly Val Thr  
35 40

<210> 1604

<211> 132

<212> PRT

<213> Homo sapiens

<400> 1604

Ser Ala Trp Arg Ser Pro Asn Thr Ala Val Gln Pro Ala Ala Cys Pro  
1 5 10 15

Lys Gln Cys Asn Pro Glu Thr Arg Pro Val Glu Lys Lys Ile Arg Ser  
20 25 30

Ala Leu Pro Thr Lys Thr Val Lys Pro Val Glu Asn Lys Asp Asp Asp  
35 40 45

Asp Ser Ile Ala Asp Phe Leu Asn Ser Asp Glu Glu Glu Asp Arg Val  
50 55 60

Ser Leu Gln Asn Leu Lys Asn Leu Gly Glu Ser Ala Thr Leu Arg Ser  
65 70 75 80

Leu Leu Leu Asn Pro His Leu Arg Gln Leu Met Val Asn Leu Asp Gln  
85 90 95

Gly Glu Asp Lys Ala Lys Leu Met Arg Ala Tyr Met Gln Glu Pro Leu  
100 105 110

Phe Val Glu Phe Ala Asp Cys Cys Leu Gly Ile Val Glu Pro Ser Gln  
115 120 125

Asn Glu Glu Ser  
130

<210> 1605

<211> 326

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (30)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (182)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (226)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (285)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (287)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (290)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (298)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (306)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1605

Pro Arg Ile His Leu Glu Asn Val Ser Glu Asp Glu Ile Asn Arg Leu  
1 5 10 15

Leu Gly Met Val Val Asp Val Glu Asn Leu Phe Met Ser Xaa Xaa Lys  
20 25 30

Glu Glu Asp Thr Asp Thr Lys Gln Val Tyr Phe Tyr Leu Phe Lys Leu  
35 40 45

Leu Arg Lys Cys Ile Leu Gln Met Thr Arg Pro Val Val Glu Gly Ser  
50 55 60

Leu Gly Ser Pro Pro Phe Glu Lys Pro Asn Ile Glu Gln Gly Val Leu  
65 70 75 80

Asn Phe Val Gln Tyr Lys Phe Ser His Leu Ala Pro Arg Glu Arg Gln  
85 90 95

Thr Met Phe Glu Leu Ser Lys Met Phe Leu Leu Cys Leu Asn Tyr Trp  
100 105 110

Lys Leu Glu Xaa Pro Ala Gln Phe Arg Gln Arg Ser Gln Ala Glu Asp  
115 120 125

Val Ala Thr Tyr Lys Val Asn Tyr Thr Arg Trp Leu Cys Tyr Cys His  
130 135 140

Val Pro Gln Ser Cys Asp Ser Leu Pro Arg Tyr Glu Thr Thr His Val  
145 150 155 160

Phe Gly Arg Ser Leu Leu Arg Ser Ile Phe Thr Val Thr Arg Arg Gln  
165 170 175

Leu Leu Glu Lys Phe Xaa Val Glu Lys Asp Lys Leu Val Pro Glu Lys  
180 185 190

Arg Thr Ser Ser Ser Leu Thr Ser Pro Ser Lys Ala Pro Ser Gly Leu

195	200	205
Pro Gly Phe Gly Pro Lys Phe Thr Ser Ser Leu Leu Ser Pro Phe Phe		
210	215	220
Gln Xaa Gly Phe Leu Asp Trp Ser Leu Leu Ser Leu His Gly Pro Phe		
225	230	235 240
Gly Ile Trp Ala Ser Thr Trp Gln Thr Cys Pro Trp Pro Arg Ser Asn		
245	250	255
Leu Leu Val Leu Val Trp Gly Trp Gln Ile Pro Val His Ala Gly Gly		
260	265	270
Gly Asp Leu Trp Gly Lys Leu Ser Asn Leu Gly Val Xaa Leu Xaa His		
275	280	285
Ala Xaa Leu Arg Gly Asp Thr Ala Gly Xaa Pro Gly Gln Leu Gln Ser		
290	295	300
Val Xaa Gly Leu Phe Pro Ala Pro Pro Ser Ser Ala Pro Ala Trp Val		
305	310	315 320
Gly Ala Ala Thr Ala Pro		
325		

&lt;210&gt; 1606

&lt;211&gt; 94

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (32)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (35)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (70)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1606

Phe Gly Thr Trp Lys Lys Lys Lys Lys Thr Leu Arg Asp Ser Leu Cys
1 5 10 15

Glu Glu Leu Leu Thr Glu Ser Leu Ser Thr Phe Leu Pro Pro Asp Xaa  
20 25 30  
Glu Asp Xaa Gly Val Ser Val Ser Val Leu Ser Pro Leu Leu Phe Pro  
35 40 45  
Asn Gln Gly Leu Cys His Tyr Cys Pro Ser Gln Leu Ser Met Gln Glu  
50 55 60  
Asp Arg Val Ala Trp Xaa Ser Tyr Pro Cys Pro Ser Pro Lys Gly Ser  
65 70 75 80  
Thr Arg Lys Leu Lys Arg Leu Lys Lys Lys Arg Val Cys Ser  
85 90

<210> 1607  
<211> 246  
<212> PRT  
<213> Homo sapiens

<400> 1607  
Ala Ala Ala Trp Cys Ala Arg Leu Ala Gly Asp Gly Ile Arg Arg Thr  
1 5 10 15  
Trp Thr Pro Pro Glu Trp Lys Pro Lys Gln Glu Leu Leu Leu Leu Arg  
20 25 30  
Gly Cys Arg Ser Arg Arg Glu Pro Pro Asp Arg Arg Gln Ser Glu Glu  
35 40 45  
Gly Ala Thr Arg Leu Gly Lys Met Thr Gln Phe Leu Pro Pro Asn Leu  
50 55 60  
Leu Ala Leu Phe Ala Pro Arg Asp Pro Ile Pro Tyr Leu Pro Pro Leu  
65 70 75 80  
Glu Lys Leu Pro His Glu Lys His His Asn Gln Pro Tyr Cys Gly Ile  
85 90 95  
Ala Pro Tyr Ile Arg Glu Phe Glu Asp Pro Arg Asp Ala Pro Pro Pro  
100 105 110  
Thr Arg Ala Glu Thr Arg Glu Glu Arg Met Glu Arg Lys Arg Arg Glu  
115 120 125  
Lys Ile Glu Arg Arg Gln Gln Glu Val Glu Thr Glu Leu Lys Met Trp  
130 135 140

Asp Pro His Asn Asp Pro Asn Ala Gln Gly Asp Ala Phe Lys Thr Leu  
 145 150 155 160  
 Phe Val Ala Arg Val Asn Tyr Asp Thr Thr Glu Ser Lys Leu Arg Arg  
 165 170 175  
 Glu Phe Glu Val Tyr Gly Pro Ile Lys Arg Ile His Met Val Tyr Ser  
 180 185 190  
 Lys Arg Ser Gly Lys Pro Arg Gly Tyr Ala Phe Ile Glu Tyr Glu His  
 195 200 205  
 Glu Arg Asp Met His Ser Ala Tyr Lys His Ala Asp Gly Lys Lys Ile  
 210 215 220  
 Asp Gly Arg Arg Val Leu Val Asp Val Glu Arg Gly Arg Thr Val Lys  
 225 230 235 240  
 Gly Trp Arg Pro Gly Gly  
 245

&lt;210&gt; 1608

&lt;211&gt; 65

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (60)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (62)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1608

Gly Pro Ser Leu Ser Leu Met Phe Lys Gln Ser Leu Ser Met Lys Leu  
 1 5 10 15

Gly Gly Asp Arg Val Ser Cys Gln Phe Leu Thr Ala Thr Ser His Gln  
 20 25 30

Trp Leu His Ser Val Ser Leu Thr Gln His Met Ala Gln Glu Cys Cys  
 35 40 45

His Pro Ser Val Phe Tyr Ser Ser Asn Pro Arg Xaa Trp Xaa Leu Arg  
 50 55 60

Asp  
65

<210> 1609

<211> 213

<212> PRT

<213> Homo sapiens

<400> 1609

Glu Ser Gln Glu Asp Lys Glu Pro Lys Glu Glu Thr Pro Ala Gly Gly  
1 5 10 15

Arg Ala Ala Ala Ala Asp Pro Gly Trp Gly Ser Gln Pro Ala Gln Gln  
20 25 30

Arg Ala Ala Arg Lys Ala Ser Lys Glu Glu Gly Ala Arg Arg Gly Val  
35 40 45

Arg Gly Leu Gly Val Arg Pro Leu Arg Pro Leu Gly Asn Arg Glu Trp  
50 55 60

Thr Ala Glu Gln Thr Val Gly Leu Ser Gly Val Trp Gly Asn Thr Gly  
65 70 75 80

Asn Ser Ser Gln Glu Gly Tyr Pro Pro Tyr Trp Leu Pro Pro Pro Ala  
85 90 95

Ala Gln Leu Cys Pro Pro Glu Pro Ser Val Ser Leu Asn Pro Ser Leu  
100 105 110

Phe Phe Pro Thr Ser Thr Phe Trp Thr Phe Pro Leu Pro Phe Pro Val  
115 120 125

Phe Lys Ile Ser Val Thr Thr Pro Gly Thr Phe Ala Ala Asp Leu Gly  
130 135 140

Val Leu Phe Lys Arg Lys Ser Gly Gly Trp Glu Ser Leu Gly Glu Leu  
145 150 155 160

Arg Leu Arg Val Glu Gly Val Cys Pro Ser Leu Gly Val Leu Val Pro  
165 170 175

Val Arg Gly Val Tyr Gly Leu Phe Pro Ser Pro Ser Leu Ile Phe Phe  
180 185 190

Phe Phe Leu Lys Lys Ala Lys Met Arg Ile Asn Thr Ser Arg His Val  
195 200 205

Lys Lys Lys Lys Lys



210

<210> 1610  
<211> 916  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (365)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (524)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (687)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (806)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1610  
Arg Pro Thr Arg Pro Ala Gly Ser Thr Asp Cys His Gly Ala Ala Ala  
1 5 10 15  
Gly Val Arg Ala Thr Leu Val Leu Glu Leu Leu Asp Thr Asp Gly Leu  
20 25 30  
Val Val Cys Ala Arg Gly Leu Gly Ala Asp Arg Leu Leu Tyr His Phe  
35 40 45  
Leu Gln Leu His Cys His Pro Ala Cys Leu Val Leu Val Leu Asn Thr  
50 55 60  
Gln Pro Ala Glu Glu Glu Tyr Phe Ile Asn Gln Leu Lys Ile Glu Gly  
65 70 75 80  
Val Glu His Leu Pro Arg Arg Val Thr Asn Glu Ile Thr Ser Asn Ser  
85 90 95  
Arg Tyr Glu Val Tyr Thr Gln Gly Gly Val Ile Phe Ala Thr Ser Arg  
100 105 110

Ile Leu Val Val Asp Phe Leu Thr Asp Arg Ile Pro Ser Asp Leu Ile  
115 120 125

Thr Gly Ile Leu Val Tyr Arg Ala His Arg Ile Ile Glu Ser Cys Gln  
130 135 140

Glu Ala Phe Ile Leu Arg Leu Phe Arg Gln Lys Asn Lys Arg Gly Phe  
145 150 155 160

Ile Lys Ala Phe Thr Asp Asn Ala Val Ala Phe Asp Thr Gly Phe Cys  
165 170 175

His Val Glu Arg Val Met Arg Asn Leu Phe Val Arg Lys Leu Tyr Leu  
180 185 190

Trp Pro Arg Phe His Val Ala Val Asn Ser Phe Leu Glu Gln His Lys  
195 200 205

Pro Glu Val Val Glu Ile His Val Ser Met Thr Pro Thr Met Leu Ala  
210 215 220

Ile Gln Thr Ala Ile Leu Asp Ile Leu Asn Ala Cys Leu Lys Glu Leu  
225 230 235 240

Lys Cys His Asn Pro Ser Leu Glu Val Glu Asp Leu Ser Leu Glu Asn  
245 250 255

Ala Ile Gly Lys Pro Phe Asp Lys Thr Ile Arg His Tyr Leu Asp Pro  
260 265 270

Leu Trp His Gln Leu Gly Ala Lys Thr Lys Ser Leu Val Gln Asp Leu  
275 280 285

Lys Ile Leu Arg Thr Leu Leu Gln Tyr Leu Ser Gln Tyr Asp Cys Val  
290 295 300

Thr Phe Leu Asn Leu Leu Glu Ser Leu Arg Ala Thr Glu Lys Ala Phe  
305 310 315 320

Gly Gln Asn Ser Gly Trp Leu Phe Leu Asp Ser Ser Thr Ser Met Phe  
325 330 335

Ile Asn Ala Arg Ala Arg Val Tyr His Leu Pro Asp Ala Lys Met Ser  
340 345 350

Lys Lys Glu Lys Ile Ser Glu Lys Met Glu Ile Lys Xaa Gly Glu Glu  
355 360 365

Thr Lys Lys Glu Leu Val Leu Glu Ser Asn Pro Lys Trp Glu Ala Leu  
370 375 380

Thr Glu Val Leu Lys Glu Ile Glu Ala Glu Asn Lys Glu Ser Glu Ala  
385 390 395 400

Leu Gly Gly Pro Gly Gln Val Leu Ile Cys Ala Ser Asp Asp Arg Thr  
405 410 415

Cys Ser Gln Leu Arg Asp Tyr Ile Thr Leu Gly Ala Glu Ala Phe Leu  
420 425 430

Leu Arg Leu Tyr Arg Lys Thr Phe Glu Lys Asp Ser Lys Ala Glu Glu  
435 440 445

Val Trp Met Lys Phe Arg Lys Glu Asp Ser Ser Lys Arg Ile Arg Lys  
450 455 460

Ser His Lys Arg Pro Lys Asp Pro Gln Asn Lys Glu Arg Ala Ser Thr  
465 470 475 480

Lys Glu Arg Thr Leu Lys Lys Lys Lys Arg Lys Leu Thr Leu Thr Gln  
485 490 495

Met Val Gly Lys Pro Glu Glu Leu Glu Glu Glu Gly Asp Val Glu Glu  
500 505 510

Gly Tyr Arg Arg Glu Ile Ser Ser Ser Pro Glu Xaa Cys Pro Glu Glu  
515 520 525

Ile Lys His Glu Glu Phe Asp Val Asn Leu Ser Ser Asp Ala Ala Phe  
530 535 540

Gly Ile Leu Lys Glu Pro Leu Thr Ile Ile His Pro Leu Leu Gly Cys  
545 550 555 560

Ser Asp Pro Tyr Ala Leu Thr Arg Val Leu His Glu Val Glu Pro Arg  
565 570 575

Tyr Val Val Leu Tyr Asp Ala Glu Leu Thr Phe Val Arg Gln Leu Glu  
580 585 590

Ile Tyr Arg Ala Ser Arg Pro Gly Lys Pro Leu Arg Val Tyr Phe Leu  
595 600 605

Ile Tyr Gly Gly Ser Thr Glu Glu Gln Arg Tyr Leu Thr Ala Leu Arg  
610 615 620

Lys Glu Lys Glu Ala Phe Glu Lys Leu Ile Arg Glu Lys Ala Ser Met  
625 630 635 640

Val Val Pro Glu Glu Arg Glu Gly Arg Asp Glu Thr Asn Leu Asp Leu  
645 650 655

Val Arg Gly Thr Ala Ser Ala Asp Val Ser Thr Asp Thr Arg Lys Ala  
660 665 670

Gly Gly Gln Glu Gln Asn Gly Thr Gln Gln Ser Ile Val Val Xaa Met  
675 680 685

Arg Glu Phe Arg Ser Glu Leu Pro Ser Leu Ile His Arg Arg Asp Ile  
690 695 700

Asp Ile Glu Pro Val Thr Leu Glu Val Gly Asp Tyr Ile Leu Thr Pro  
705 710 715 720

Glu Met Cys Val Glu Arg Lys Ser Ile Ser Asp Leu Ile Gly Ser Leu  
725 730 735

Asn Asn Gly Arg Leu Tyr Ser Gln Cys Ile Ser Met Ser Arg Tyr Tyr  
740 745 750

Lys Arg Pro Val Leu Leu Ile Glu Phe Asp Pro Ser Lys Pro Phe Ser  
755 760 765

Leu Thr Ser Arg Gly Ala Leu Phe Gln Glu Ile Ser Ser Asn Asp Ile  
770 775 780

Ser Ser Lys Leu Thr Leu Leu Thr Leu His Phe Pro Arg Leu Arg Ile  
785 790 795 800

Leu Trp Cys Pro Ser Xaa His Ala Thr Ala Glu Leu Phe Glu Glu Leu  
805 810 815

Lys Gln Ser Lys Pro Gln Pro Asp Ala Ala Thr Ala Leu Ala Ile Thr  
820 825 830

Ala Asp Ser Glu Thr Leu Pro Glu Ser Glu Lys Tyr Asn Pro Gly Pro  
835 840 845

Gln Asp Phe Leu Leu Lys Met Pro Gly Val Asn Ala Lys Asn Cys Arg  
850 855 860

Ser Leu Met His His Val Lys Asn Ile Ala Glu Leu Ala Ala Leu Ser  
865 870 875 880

Gln Asp Glu Leu Thr Ser Ile Leu Gly Asn Ala Ala Asn Ala Lys Gln  
885 890 895

Leu Tyr Asp Phe Ile His Thr Ser Phe Ala Glu Val Val Ser Lys Gly  
900 905 910

Lys Gly Lys Lys  
915

<210> 1611  
<211> 197  
<212> PRT  
<213> Homo sapiens

<400> 1611

Gly Gly Gly Pro Ala Pro Gly Asp Ile Val Phe Cys Arg Asn Gln Pro  
1 5 10 15

Lys Asp Glu Asp Ala Asp Met Met Lys Tyr Ile Glu Thr Glu Leu Lys  
20 25 30

Lys Arg Lys Gly Ile Val Glu His Glu Glu Gln Lys Val Lys Pro Lys  
35 40 45

Asn Ala Glu Asp Cys Leu Tyr Glu Leu Pro Glu Asn Ile Arg Val Ser  
50 55 60

Ser Ala Lys Lys Thr Glu Glu Met Leu Ser Asn Gln Met Leu Ser Gly  
65 70 75 80

Ile Pro Glu Val Asp Leu Gly Ile Asp Ala Lys Ile Lys Asn Ile Ile  
85 90 95

Ser Thr Glu Asp Ala Lys Ala Arg Leu Leu Ala Glu Gln Gln Asn Lys  
100 105 110

Lys Lys Asp Ser Glu Thr Ser Phe Val Pro Thr Asn Met Ala Val Asn  
115 120 125

Tyr Val Gln His Asn Arg Phe Tyr His Glu Glu Leu Asn Ala Pro Ile  
130 135 140

Arg Arg Asn Lys Glu Glu Pro Lys Ala Arg Pro Leu Arg Val Gly Asp  
145 150 155 160

Thr Glu Lys Pro Glu Pro Glu Arg Ser Pro Pro Asn Arg Lys Arg Pro  
165 170 175

Ala Asn Glu Lys Ala Thr Asp Asp Tyr His Tyr Glu Lys Phe Lys Lys  
180 185 190

Met Asn Arg Arg Tyr  
195

<210> 1612  
<211> 476

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1612

Pro Arg Val Arg Gly Asp Val Gly Met Ala Gly Val Ala Ile Asp Thr  
1 5 10 15

Val Glu Asp Thr Lys Ile Leu Phe Asp Gly Ile Pro Leu Glu Lys Met  
20 25 30

Ser Val Ser Met Thr Met Asn Gly Ala Val Ile Pro Val Leu Ala Asn  
35 40 45

Phe Ile Val Thr Gly Glu Glu Gln Gly Val Pro Lys Glu Lys Leu Thr  
50 55 60

Gly Thr Ile Gln Asn Asp Ile Leu Lys Glu Phe Met Val Arg Asn Thr  
65 70 75 80

Tyr Ile Phe Pro Pro Glu Pro Ser Met Lys Ile Ile Ala Asp Ile Phe  
85 90 95

Glu Tyr Thr Ala Lys His Met Pro Lys Phe Asn Ser Ile Ser Ile Ser  
100 105 110

Gly Tyr His Met Gln Glu Ala Gly Ala Asp Ala Ile Leu Glu Leu Ala  
115 120 125

Tyr Thr Leu Ala Asp Gly Leu Glu Tyr Ser Arg Thr Gly Leu Gln Ala  
130 135 140

Gly Leu Thr Ile Asp Glu Phe Ala Pro Arg Leu Ser Phe Phe Trp Gly  
145 150 155 160

Ile Gly Met Asn Phe Tyr Met Glu Ile Ala Lys Met Arg Ala Gly Arg  
165 170 175

Arg Leu Trp Ala His Leu Ile Glu Lys Met Phe Gln Pro Lys Asn Ser  
180 185 190

Lys Ser Leu Leu Leu Arg Ala His Cys Gln Thr Ser Gly Trp Ser Leu  
195 200 205

Thr Glu Gln Asp Pro Tyr Asn Asn Ile Val Arg Thr Ala Ile Glu Ala  
210 215 220

Met Ala Ala Val Phe Gly Gly Thr Gln Ser Leu His Thr Asn Ser Phe  
225 230 235 240

Asp Glu Ala Leu Gly Leu Pro Thr Val Lys Ser Ala Arg Ile Ala Arg  
245 250 255

Asn Thr Gln Ile Ile Ile Gln Glu Glu Ser Gly Ile Pro Lys Val Ala  
260 265 270

Asp Pro Trp Gly Gly Ser Tyr Met Met Glu Cys Leu Thr Asn Asp Val  
275 280 285

Tyr Asp Ala Ala Leu Lys Leu Ile Asn Glu Ile Glu Glu Met Gly Gly  
290 295 300

Met Ala Lys Ala Val Ala Glu Gly Ile Pro Lys Leu Arg Ile Glu Glu  
305 310 315 320

Cys Ala Ala Arg Arg Gln Ala Arg Ile Asp Ser Gly Ser Glu Val Ile  
325 330 335

Val Gly Val Asn Lys Tyr Gln Leu Glu Lys Glu Asp Ala Val Glu Val  
340 345 350

Leu Ala Ile Asp Asn Thr Ser Val Arg Asn Arg Gln Ile Glu Lys Leu  
355 360 365

Lys Lys Ile Lys Ser Ser Arg Asp Gln Ala Leu Ala Glu Arg Cys Leu  
370 375 380

Ala Ala Leu Thr Glu Cys Ala Ala Ser Gly Asp Gly Asn Ile Leu Ala  
385 390 395 400

Leu Ala Val Asp Ala Ser Arg Ala Arg Cys Thr Val Gly Glu Ile Thr  
405 410 415

Asp Ala Leu Lys Lys Val Phe Gly Glu His Lys Ala Asn Asp Arg Met  
420 425 430

Val Ser Gly Ala Tyr Arg Gln Glu Phe Gly Glu Ser Lys Glu Ile Thr  
435 440 445

Ser Ala Ile Lys Arg Val His Lys Phe Met Glu Arg Glu Gly Arg Ser  
450 455 460

Ser Ser Ser Cys Ser Lys Asn Gly Thr Arg Trp Pro  
465 470 475

<210> 1613

<211> 319

<212> PRT

<213> Homo sapiens

<220>

&lt;221&gt; SITE

&lt;222&gt; (84)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (85)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (289)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1613

Gln His His Arg Ala Ala His Leu Lys Trp Ile Phe Val Gly Gly Lys  
 1 5 10 15

Gly Gly Val Gly Lys Thr Thr Cys Ser Cys Ser Leu Ala Val Gln Leu  
 20 25 30

Ser Lys Gly Arg Glu Ser Val Leu Ile Ile Ser Thr Asp Pro Ala His  
 35 40 45

Asn Ile Ser Asp Ala Phe Asp Gln Lys Phe Ser Lys Val Pro Thr Lys  
 50 55 60

Val Lys Gly Tyr Asp Asn Leu Phe Ala Met Glu Ile Asp Pro Ser Leu  
 65 70 75 80

Gly Val Ala Xaa Xaa Pro Asp Glu Phe Phe Glu Glu Asp Asn Met Leu  
 85 90 95

Ser Met Gly Lys Lys Met Met Gln Glu Ala Met Ser Ala Phe Pro Gly  
 100 105 110

Ile Asp Glu Ala Met Ser Tyr Ala Glu Val Met Arg Leu Val Lys Gly  
 115 120 125

Met Asn Phe Ser Val Val Val Phe Asp Thr Ala Pro Thr Gly His Thr  
 130 135 140

Leu Arg Leu Leu Asn Phe Pro Thr Ile Val Glu Arg Gly Leu Gly Arg  
 145 150 155 160

Leu Met Gln Ile Lys Asn Gln Ile Ser Pro Phe Ile Ser Gln Met Cys  
 165 170 175

Asn Met Leu Gly Leu Gly Asp Met Asn Ala Asp Gln Leu Ala Ser Lys  
 180 185 190



Leu Glu Glu Thr Leu Pro Val Ile Arg Ser Val Ser Glu Gln Phe Lys  
 195 200 205

Asp Pro Glu Gln Thr Thr Phe Ile Cys Val Cys Ile Ala Glu Phe Leu  
 210 215 220

Ser Leu Tyr Glu Thr Glu Arg Leu Ile Gln Glu Leu Ala Lys Cys Lys  
 225 230 235 240

Ile Asp Thr His Asn Ile Ile Val Asn Gln Leu Val Phe Pro Asp Pro  
 245 250 255

Glu Lys Pro Cys Lys Met Cys Glu Ala Arg His Lys Ile Gln Ala Lys  
 260 265 270

Tyr Leu Asp Gln Met Glu Asp Leu Tyr Glu Asp Phe His Ile Val Lys  
 275 280 285

Xaa Pro Leu Leu Pro His Glu Val Arg Gly Ala Asp Lys Val Asn Thr  
 290 295 300

Phe Ser Ala Leu Leu Leu Glu Pro Tyr Lys Pro Pro Ser Ala Gln  
 305 310 315

<210> 1614

<211> 207

<212> PRT

<213> Homo sapiens

<400> 1614

His Glu Glu Arg Gly Gln Gly Arg Phe Leu Lys Met Ala Ala Leu Lys  
 1 5 10 15

Ala Leu Val Ser Gly Cys Gly Arg Leu Leu Arg Gly Leu Leu Ala Gly  
 20 25 30

Pro Ala Ala Thr Ser Trp Ser Arg Leu Pro Ala Arg Gly Phe Arg Glu  
 35 40 45

Val Val Glu Thr Gln Glu Gly Lys Thr Thr Ile Ile Glu Gly Arg Ile  
 50 55 60

Thr Ala Thr Pro Lys Glu Ser Pro Asn Pro Pro Asn Pro Ser Gly Gln  
 65 70 75 80

Cys Pro Ile Cys Arg Trp Asn Leu Lys His Lys Tyr Asn Tyr Asp Asp  
 85 90 95

Val Leu Leu Leu Ser Gln Phe Ile Arg Pro His Gly Gly Met Leu Pro

100	105	110
Arg Lys Ile Thr Gly Leu Cys Gln Glu Glu His Arg Lys Ile Glu Glu		
115	120	125
Cys Val Lys Met Ala His Arg Ala Gly Leu Leu Pro Asn His Arg Pro		
130	135	140
Arg Leu Pro Glu Gly Val Val Pro Lys Ser Lys Pro Gln Leu Asn Arg		
145	150	155
Tyr Leu Thr Arg Trp Ala Pro Gly Ser Val Lys Pro Ile Tyr Lys Lys		
165	170	175
Gly Pro Arg Trp Asn Arg Val Arg Met Pro Val Gly Ser Pro Leu Leu		
180	185	190
Arg Asp Asn Val Cys Tyr Ser Arg Thr Pro Trp Lys Leu Tyr His		
195	200	205

&lt;210&gt; 1615

&lt;211&gt; 304

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (174)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1615

Pro Thr Arg Pro Arg Val His Leu Ala Thr Val Ser Ala Ser Ala Ala		
1	5	10
Trp Asp Ala Leu Gly Leu Pro Val Arg Ser His Met Gln Gly Ser Thr		
20	25	30
Arg Arg Met Gly Val Met Thr Asp Val His Arg Arg Phe Leu Gln Leu		
35	40	45
Leu Met Thr His Gly Val Leu Glu Glu Trp Asp Val Lys Arg Leu Gln		
50	55	60
Thr His Cys Tyr Lys Val His Asp Arg Asn Ala Thr Val Asp Lys Leu		
65	70	75
Glu Asp Phe Ile Asn Asn Ile Asn Ser Val Leu Glu Ser Leu Tyr Ile		
85	90	95

Glu Ile Lys Arg Gly Val Thr Glu Asp Asp Gly Arg Pro Ile Tyr Ala  
100 105 110

Leu Val Asn Leu Ala Thr Thr Ser Ile Ser Lys Met Ala Thr Asp Phe  
115 120 125

Ala Glu Asn Glu Leu Asp Leu Phe Arg Lys Ala Leu Glu Leu Ile Ile  
130 135 140

Asp Ser Glu Thr Gly Phe Ala Ser Ser Thr Asn Ile Leu Asn Leu Val  
145 150 155 160

Asp Gln Leu Lys Gly Lys Lys Met Arg Lys Lys Glu Ala Xaa Gln Val  
165 170 175

Leu Gln Lys Phe Val Gln Asn Lys Trp Leu Ile Glu Lys Glu Gly Glu  
180 185 190

Phe Thr Leu His Gly Arg Ala Ile Leu Glu Met Glu Gln Tyr Ile Arg  
195 200 205

Glu Thr Tyr Pro Asp Ala Val Lys Ile Cys Asn Ile Cys His Ser Leu  
210 215 220

Leu Ile Gln Gly Gln Ser Cys Glu Thr Cys Gly Ile Arg Met His Leu  
225 230 235 240

Pro Cys Val Ala Lys Tyr Phe Gln Ser Asn Ala Glu Pro Arg Cys Pro  
245 250 255

His Cys Asn Asp Tyr Trp Pro His Glu Ile Pro Lys Val Phe Asp Pro  
260 265 270

Glu Lys Glu Arg Glu Ser Gly Val Leu Lys Ser Asn Lys Lys Ser Cys  
275 280 285

Gly Pro Gly Ser Ile Ser His Arg Ala Leu Leu Arg Gly Trp Leu Pro  
290 295 300

&lt;210&gt; 1616

&lt;211&gt; 223

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (216)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1616

Ala Glu Xaa Leu Gly Gly Pro Gly Xaa Ala Ser Gly Gly Glu Thr Ser  
1 5 10 15

Val Glu Arg Arg Arg Thr Cys Ala Phe Asp Thr Leu Glu Ala Phe Leu  
20 25 30

Ile Met Asp Gly Glu Asp Ile Pro Asp Phe Ser Ser Leu Lys Glu Glu  
35 40 45

Thr Ala Tyr Trp Lys Glu Leu Ser Leu Lys Tyr Lys Gln Arg Ala Thr  
50 55 60

Ile Val Ser Leu Glu Asp Phe Glu Gln Arg Leu Asn Gln Ala Ile Glu  
65 70 75 80

Arg Asn Ala Phe Leu Glu Ser Glu Leu Asp Glu Lys Glu Ser Leu Leu  
85 90 95

Val Ser Val Gln Arg Leu Lys Asp Glu Ala Arg Asp Leu Arg Gln Glu  
100 105 110

Leu Ala Val Arg Glu Arg Gln Gln Glu Val Thr Arg Lys Ser Ala Pro  
115 120 125

Ser Ser Pro Thr Leu Asp Cys Glu Lys Met Asp Ser Ala Val Gln Ala  
130 135 140

Ser Leu Ser Leu Pro Ala Thr Pro Val Gly Lys Gly Thr Glu Asn Thr  
145 150 155 160

Phe Pro Ser Pro Lys Ala Ile Pro Asn Gly Phe Gly Thr Ser Pro Leu  
165 170 175

Thr Pro Ser Ala Arg Ile Ser Ala Leu Asn Ile Val Gly Gly Ser Leu  
180 185 190

Thr Glu Ser Arg Gly Phe Arg Ile Gln Ile Ser Ser Leu Gln Glu Phe

195

200

205

Cys Lys Gly Pro Ser Ile Thr Xaa Ile Leu Tyr Phe Arg Glu Cys  
210 215 220

&lt;210&gt; 1617

&lt;211&gt; 138

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1617

Val Lys Gln Tyr Leu Arg Thr Gly Tyr Lys Gln Tyr Phe Leu Lys Leu  
1 5 10 15

Ser Pro Ile Phe Pro Pro Met Arg Pro Phe Gln Thr Gln Ile Ser His  
20 25 30

Asn Arg Ala Arg Thr Ile Ile Thr Ser Pro Asp Ser Glu Pro Glu Cys  
35 40 45

Phe Pro Gln Asp Cys Val Ala Pro Asn Ala Leu Arg Ser Ile Val Gly  
50 55 60

Glu Ser Cys His Trp Asp Ser Thr Ser Arg Pro Gly Asp Gln Ala Ser  
65 70 75 80

Arg Ile Pro Leu Glu Thr Pro Pro Leu Phe His Tyr His Pro Ala Thr  
85 90 95

Ser Ser Ser Ala Met Pro Trp Phe Pro Leu Glu Ser Ser Gln Ser Gln  
100 105 110

Arg Arg Pro Pro Thr Thr Ser Lys Ala Ser Lys Val Leu Glu Ser Ala  
115 120 125

Pro Arg Leu Asn Arg Ala Ser Ile Ser Ser  
130 135

&lt;210&gt; 1618

&lt;211&gt; 388

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1618

Ala Glu Ser Thr Ala Arg Val Cys Cys Pro Ser Pro Arg Tyr Ala Gln  
1 5 10 15

Ser Arg Arg Ser Pro Ala Trp Gly Glu Gln Ser Asp His Arg Pro Gly  
20 25 30

Ala Ala Arg Arg Asp Ala Arg Cys Ala Leu Cys Pro Arg Ala Pro Thr  
35 40 45

Ala Pro Ala Ala Ala Ala Glu Ala Gln Arg Glu Asn Ala Pro Pro Arg  
50 55 60

Gly Pro Gly Ala Ala Ser Asp Pro Leu Ala Thr Cys Ala Gln Pro Glu  
65 70 75 80

Val Ser Ser Glu Arg Arg Ala Gly Gly Gln Arg Gly Val Arg Gly Pro  
85 90 95

Pro Pro Ala Ala Arg Ala Arg Pro Leu Met Ala Ala Ile Arg Lys Lys  
100 105 110

Leu Val Val Val Gly Asp Gly Ala Cys Gly Lys Thr Cys Leu Leu Ile  
115 120 125

Val Phe Ser Lys Asp Glu Phe Pro Glu Val Tyr Val Pro Thr Val Phe  
130 135 140

Glu Asn Tyr Val Ala Asp Ile Glu Val Asp Gly Lys Gln Val Glu Leu  
145 150 155 160

Ala Leu Trp Asp Thr Ala Gly Gln Glu Asp Tyr Asp Arg Leu Arg Pro  
165 170 175

Leu Ser Tyr Pro Asp Thr Asp Val Ile Leu Met Cys Phe Ser Val Asp  
180 185 190

Ser Pro Asp Ser Leu Glu Asn Ile Pro Glu Lys Trp Val Pro Glu Val  
195 200 205

Lys His Phe Cys Pro Asn Val Pro Ile Ile Leu Val Ala Asn Lys Lys  
210 215 220

Asp Leu Arg Ser Asp Glu His Val Arg Thr Glu Leu Ala Arg Met Lys  
225 230 235 240

Gln Glu Pro Val Arg Thr Asp Asp Gly Arg Ala Met Ala Val Arg Ile  
245 250 255

Gln Ala Tyr Asp Tyr Leu Glu Cys Ser Ala Lys Thr Lys Glu Gly Val  
260 265 270

Arg Glu Val Phe Glu Thr Ala Thr Arg Ala Ala Ala Glu Ala Leu Arg  
275 280 285

Leu Pro Glu Arg Leu His Gln Leu Leu Gln Gly Ala Met Arg Ala Ala  
290 295 300

Pro Val Ala Pro Ala Pro Ala Gly Thr Ala Pro Pro Pro Gly Pro Val  
305 310 315 320

Pro Arg Glu Pro Gly Glu Gly Glu Thr Arg Val Pro Gln Gly Pro His  
325 330 335

Arg Pro Ala Trp His Leu Ser Ala Asp Ala Ser Gly Leu Arg Gln Asp  
340 345 350

Leu Ala Trp Ala Pro Gly Ala Pro Ile Pro Val Ser Val Cys Val Gln  
355 360 365

Leu Cys Cys Thr Gly Leu Gly Ser Pro Leu Ser Ala Lys Gly Pro Leu  
370 375 380

Ser Met Leu Phe  
385

&lt;210&gt; 1619

&lt;211&gt; 184

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1619

Val Pro Val Arg Asn Ser Arg Val Asp Pro Arg Val Arg Gly Thr Arg  
1 5 10 15

Gly Arg Thr Arg Gly Arg Glu Gly Arg Ser Leu Trp Arg Lys Met Ala  
20 25 30

Ala Ala Trp Gly Ser Ser Leu Thr Ala Ala Thr Gln Arg Ala Val Thr  
35 40 45

Pro Trp Pro Arg Gly Arg Leu Leu Thr Ala Ser Leu Gly Pro Gln Ala  
50 55 60

Arg Arg Glu Ala Ser Ser Ser Ser Pro Glu Ala Gly Glu Gly Gln Ile  
65 70 75 80

Arg Leu Thr Asp Ser Cys Val Gln Arg Leu Leu Glu Ile Thr Glu Gly  
85 90 95

Ser Glu Phe Leu Arg Leu Gln Val Glu Gly Gly Gly Cys Ser Gly Phe  
100 105 110

Gln Tyr Lys Phe Ser Leu Asp Thr Val Ile Asn Pro Asp Asp Arg Val

115                      120                      125  
 Phe Glu Gln Gly Gly Ala Arg Val Val Val Asp Ser Asp Ser Leu Ala  
     130                      135                      140  
 Phe Val Lys Gly Ala Gln Val Asp Phe Ser Gln Glu Leu Ile Arg Ser  
     145                      150                      155                      160  
 Ser Phe Gln Val Leu Asn Asn Pro Gln Ala Gln Gln Gly Cys Ser Cys  
                     165                      170                      175  
 Gly Ser Ser Phe Ser Ile Lys Leu  
                     180

<210> 1620  
 <211> 468  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (1)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (4)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1620  
 Xaa Ala Pro Xaa Gly Pro Pro Ala Pro Pro Ala Leu Pro Pro Ala Ala  
     1                      5                      10                      15  
 Ser Pro Gly Ala Pro Ala Arg Arg Pro Gly Gly Arg Ser Glu Glu Lys  
                     20                      25                      30  
 Ile Ser Asp Ser Glu Gly Phe Lys Ala Asn Leu Ser Leu Leu Arg Arg  
                     35                      40                      45  
 Pro Gly Glu Lys Thr Tyr Thr Gln Arg Cys Arg Leu Phe Val Gly Asn  
                     50                      55                      60  
 Leu Pro Ala Asp Ile Thr Glu Asp Glu Phe Lys Arg Leu Phe Ala Lys  
     65                      70                      75                      80  
 Tyr Gly Glu Pro Gly Glu Val Phe Ile Asn Lys Gly Lys Gly Phe Gly  
                     85                      90                      95  
 Phe Ile Lys Leu Glu Ser Arg Ala Leu Ala Glu Ile Ala Lys Ala Glu



100 105 110

Leu Asp Asp Thr Pro Met Arg Gly Arg Gln Leu Arg Val Arg Phe Ala  
115 120 125

Thr His Ala Ala Ala Leu Ser Val Arg Asn Leu Ser Pro Tyr Val Ser  
130 135 140

Asn Glu Leu Leu Glu Glu Ala Phe Ser Gln Phe Gly Pro Ile Glu Arg  
145 150 155 160

Ala Val Val Ile Val Asp Asp Arg Gly Arg Ser Thr Gly Lys Gly Ile  
165 170 175

Val Glu Phe Ala Ser Lys Pro Ala Ala Arg Lys Ala Phe Glu Arg Cys  
180 185 190

Ser Glu Gly Val Phe Leu Leu Thr Thr Thr Pro Arg Pro Val Ile Val  
195 200 205

Glu Pro Leu Glu Gln Leu Asp Asp Glu Asp Gly Leu Pro Glu Lys Leu  
210 215 220

Ala Gln Lys Asn Pro Met Tyr Gln Lys Glu Arg Glu Thr Pro Pro Arg  
225 230 235 240

Phe Ala Gln His Gly Thr Phe Glu Tyr Glu Tyr Ser Gln Arg Trp Lys  
245 250 255

Ser Leu Asp Glu Met Glu Lys Gln Gln Arg Glu Gln Val Glu Lys Asn  
260 265 270

Met Lys Asp Ala Lys Asp Lys Leu Glu Ser Glu Met Glu Asp Ala Tyr  
275 280 285

His Glu His Gln Ala Asn Leu Leu Arg Gln Asp Leu Met Arg Arg Gln  
290 295 300

Glu Glu Leu Arg Arg Met Glu Glu Leu His Asn Gln Glu Met Gln Lys  
305 310 315 320

Arg Lys Glu Met Gln Leu Arg Gln Glu Glu Glu Arg Arg Arg Arg Glu  
325 330 335

Glu Glu Met Met Ile Arg Gln Arg Glu Met Glu Glu Gln Met Arg Arg  
340 345 350

Gln Arg Glu Glu Ser Tyr Ser Arg Met Gly Tyr Met Asp Pro Arg Glu  
355 360 365

Arg Asp Met Arg Met Gly Gly Gly Gly Ala Met Asn Met Gly Asp Pro

370

375

380

Tyr Gly Ser Gly Gly Gln Lys Phe Pro Pro Leu Gly Gly Gly Gly Gly  
 385 390 395 400

Ile Gly Tyr Glu Ala Asn Pro Gly Val Pro Pro Ala Thr Met Ser Gly  
 405 410 415

Ser Met Met Gly Ser Asp Met Arg Thr Glu Arg Phe Gly Gln Gly Gly  
 420 425 430

Ala Gly Pro Val Gly Gly Gln Gly Pro Arg Gly Met Gly Pro Gly Thr  
 435 440 445

Pro Ala Gly Tyr Gly Arg Gly Arg Glu Glu Tyr Glu Gly Pro Asn Lys  
 450 455 460

Lys Pro Arg Phe  
 465

&lt;210&gt; 1621

&lt;211&gt; 114

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1621

Ala Pro Ala Pro Thr Ser Cys Ser Leu Lys Pro Cys Ile Gly His Pro  
 1 5 10 15

Val Pro Ser Ser Gly Tyr Ser Cys His Val Gly Pro Thr Leu Ser Cys  
 20 25 30

Gly Thr Lys Arg Gly Thr Gln His Gly Asn Leu Thr Pro Glu Arg Ser  
 35 40 45

Asp Val Trp Phe Ala Leu Gln Leu Asn Arg Lys Leu Arg Leu Gly Val  
 50 55 60

Gly Asn Arg Ala Ile Arg Thr Glu Lys Ile Ile Cys Arg Asp Val Ala  
 65 70 75 80

Arg Gly Tyr Glu Asn Val Pro Ile Pro Cys Val Lys Val Trp Met Gly  
 85 90 95

Ser Pro Ala Leu Arg Ile Thr Ser Thr Ser Gln Arg Thr Ala Arg Arg  
 100 105 110

Pro Pro

<210> 1622  
<211> 399  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (10)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (15)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (397)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1622  
Glu Val Cys His Gly Gly His Arg Gly Xaa Leu Gln Ser Trp Xaa Pro  
1 5 10 15  
Pro Arg Glu Ala Glu Ser Leu Gln Pro Met Thr Val Val Gly Thr Asp  
20 25 30  
Tyr Val Phe His Asn Asp Thr Lys Val Val Phe Leu Ser Pro Ala Val  
35 40 45  
Pro Glu Glu Pro Glu Ala Tyr Asn Leu Thr Val Leu Ile Glu Met Asp  
50 55 60  
Gly His Arg Ala Leu Leu Arg Thr Glu Ala Gly Ala Phe Glu Tyr Val  
65 70 75 80  
Pro Asp Pro Thr Phe Glu Asn Phe Thr Gly Gly Val Lys Lys Gln Val  
85 90 95  
Asn Lys Leu Ile His Ala Arg Gly Thr Asn Leu Asn Lys Ala Met Thr  
100 105 110  
Leu Gln Glu Ala Glu Ala Phe Val Gly Ala Glu Arg Cys Thr Met Lys  
115 120 125  
Thr Leu Thr Glu Thr Asp Leu Tyr Cys Glu Pro Pro Glu Val Gln Pro  
130 135 140

Pro Pro Lys Arg Arg Gln Lys Arg Asp Thr Thr His Asn Leu Pro Glu  
145 150 155 160

Phe Ile Val Lys Phe Gly Ser Arg Glu Trp Val Leu Gly Arg Val Glu  
165 170 175

Tyr Asp Thr Arg Val Ser Asp Val Pro Leu Ser Leu Ile Leu Pro Leu  
180 185 190

Val Ile Val Pro Met Val Val Val Ile Ala Val Ser Val Tyr Cys Tyr  
195 200 205

Trp Arg Lys Ser Gln Gln Ala Glu Arg Glu Tyr Glu Lys Ile Lys Ser  
210 215 220

Gln Leu Glu Gly Leu Glu Glu Ser Val Arg Asp Arg Cys Lys Lys Glu  
225 230 235 240

Phe Thr Asp Leu Met Ile Glu Met Glu Asp Gln Thr Asn Asp Val His  
245 250 255

Glu Ala Gly Ile Pro Val Leu Asp Tyr Lys Thr Tyr Thr Asp Arg Val  
260 265 270

Phe Phe Leu Pro Ser Lys Asp Gly Asp Lys Asp Val Met Ile Thr Gly  
275 280 285

Lys Leu Asp Ile Pro Glu Pro Arg Arg Pro Val Val Glu Gln Ala Leu  
290 295 300

Tyr Gln Phe Ser Asn Leu Leu Asn Ser Lys Ser Phe Leu Ile Asn Phe  
305 310 315 320

Ile His Thr Leu Glu Asn Gln Arg Glu Phe Ser Ala Arg Ala Lys Val  
325 330 335

Tyr Phe Ala Ser Leu Leu Thr Val Ala Leu His Gly Lys Leu Glu Tyr  
340 345 350

Tyr Thr Asp Ile Met His Thr Leu Phe Leu Glu Leu Leu Glu Gln Tyr  
355 360 365

Val Val Ala Lys Asn Pro Lys Leu Met Leu Arg Arg Ser Glu Thr Val  
370 375 380

Val Glu Arg Met Leu Ser Asn Trp Met Ser Ile Leu Xaa Pro Ile  
385 390 395

&lt;210&gt; 1623

<211> 189  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (61)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (154)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1623  
Ile Tyr Asp Phe Arg Thr Gly Met Arg Leu Lys Lys Glu Glu Lys Ser  
1 5 10 15  
Arg Gln Glu Leu Glu Lys Leu Lys Arg Lys Leu Glu Gly Asp Ala Ser  
20 25 30  
Asp Phe His Glu Gln Ile Ala Asp Leu Gln Ala Gln Ile Ala Glu Leu  
35 40 45  
Lys Met Gln Leu Ala Lys Lys Glu Glu Glu Leu Gln Xaa Ala Leu Ala  
50 55 60  
Arg Leu Asp Asp Glu Ile Leu Gln Lys Asn Asn Ala Leu Lys Lys Ile  
65 70 75 80  
Arg Glu Leu Glu Gly His Ile Ser Asp Leu Gln Glu Asp Leu Asp Ser  
85 90 95  
Glu Arg Ala Ala Arg Asn Lys Ala Glu Lys Gln Lys Arg Asp Leu Gly  
100 105 110  
Glu Glu Leu Glu Ala Leu Lys Thr Glu Leu Glu Asp Thr Leu Asp Ser  
115 120 125  
Thr Ala Thr Gln Gln Glu Leu Arg Ala Lys Arg Glu Gln Glu Val Thr  
130 135 140  
Val Leu Lys Lys Ala Leu Asp Glu Glu Xaa Arg Ser His Glu Ala Gln  
145 150 155 160  
Val Gln Glu Met Arg Gln Lys His Ala Gln Ala Val Glu Glu Leu Lys  
165 170 175  
Gln Arg Ala Gly His Arg Ala His Thr Gly Pro Glu Glu  
180 185

&lt;210&gt; 1624

&lt;211&gt; 276

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1624

Leu Ile Ser Pro Val Trp Gly Asn Ile Gln Arg Ser Arg Ser Val Pro  
1 5 10 15

Leu Phe Pro Ser Gly Leu Val Leu Gly Gly Ile Trp Ala Arg Gly Pro  
20 25 30

Leu Leu Ala Leu Leu Ala Ser Phe Asn Ile Ile Ser Val Leu Asn Ala  
35 40 45

Glu Cys Tyr Leu Lys Gln Ile Leu His Pro Thr Ser His Phe Thr Val  
50 55 60

Ser Glu Thr Pro Pro Leu Ser Gly Asn Asp Thr Asp Ser Leu Ser Cys  
65 70 75 80

Asp Ser Gly Ser Ser Ala Thr Ser Thr Pro Cys Val Ser Arg Leu Val  
85 90 95

Thr Gly His His Leu Trp Ala Ser Lys Asn Gly Arg His Val Leu Gly  
100 105 110

Leu Ile Glu Asp Tyr Glu Ala Leu Leu Lys Gln Ile Ser Gln Gly Gln  
115 120 125

Arg Leu Leu Ala Glu Met Asp Ile Gln Thr Gln Glu Ala Pro Ser Ser  
130 135 140

Thr Ser Gln Glu Leu Gly Thr Lys Gly Pro His Pro Ala Pro Leu Ser  
145 150 155 160

Lys Phe Val Ser Ser Val Ser Thr Ala Lys Leu Thr Leu Glu Glu Ala  
165 170 175

Tyr Arg Arg Leu Lys Leu Leu Trp Arg Val Ser Leu Pro Glu Asp Gly  
180 185 190

Gln Cys Pro Leu His Cys Glu Gln Ile Gly Glu Met Lys Ala Glu Val  
195 200 205

Thr Lys Leu His Lys Lys Leu Phe Glu Gln Glu Lys Lys Leu Gln Asn  
210 215 220

Thr Met Lys Leu Leu Gln Leu Ser Lys Arg Gln Glu Lys Val Ile Phe

225                      230                      235                      240  
Asp Gln Leu Val Val Thr His Lys Ile Leu Arg Lys Ala Arg Gly Asn  
                         245                      250                      255  
Leu Glu Leu Arg Pro Gly Gly Ala His Pro Gly Thr Cys Ser Pro Ser  
                         260                      265                      270  
Arg Pro Gly Ser  
                         275

<210> 1625  
<211> 133  
<212> PRT  
<213> Homo sapiens

<400> 1625  
Gln Ser Ala Val Gly Asn Thr Ala Thr Thr Leu Pro Trp Gln Gly Pro  
1                      5                      10                      15  
Glu Ser Ile Ser Gly Gly Ala Ala His Val Cys Met Cys Cys Val Ser  
                         20                      25                      30  
Glu His Thr Arg Val His Thr His Thr His Val His Thr His Ala Leu  
                         35                      40                      45  
Ser Pro Leu Arg Gly Leu Glu Val Trp Leu Ser Pro Trp Gly Lys Val  
                         50                      55                      60  
Ser Ser Phe Ile Ser Leu Leu Gln Val Gly Val Pro Gly Val Arg Cys  
65                      70                      75                      80  
Arg Gly His Ile Ala Gly Cys Pro Leu Phe Val Ala Pro Ile Lys Gly  
                         85                      90                      95  
Pro His Leu Val Asp Thr Trp Leu Ser Val Trp Ser Leu Pro Gln Pro  
                         100                      105                      110  
Val Leu Val Thr Ile Thr Gly Leu Ala Phe Val Thr Met Met Thr Pro  
                         115                      120                      125  
Ala Cys Leu Ile Phe  
                         130

<210> 1626  
<211> 677  
<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (11)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (339)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (538)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (544)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1626

Ser Ser Gly Met Ala Leu Ala Val Ala Ala Xaa Ala Glu Ala Gln Ala  
1 5 10 15

Ala Arg Pro Gln Trp Arg Leu Glu Pro Glu Arg Arg Arg Arg Arg His  
20 25 30

Pro Gly Glu Phe Lys Met Ala Ala Gly Gly Thr Gly Gly Leu Arg Glu  
35 40 45

Glu Gln Arg Tyr Gly Leu Ser Cys Gly Arg Leu Gly Gln Asp Asn Ile  
50 55 60

Thr Val Leu His Val Lys Leu Thr Glu Thr Ala Ile Arg Ala Leu Glu  
65 70 75 80

Thr Tyr Gln Ser His Lys Asn Leu Ile Pro Phe Arg Pro Ser Ile Gln  
85 90 95

Phe Gln Gly Leu His Gly Leu Val Lys Ile Pro Lys Asn Asp Pro Leu  
100 105 110

Asn Glu Val His Asn Phe Asn Phe Tyr Leu Ser Asn Val Gly Lys Asp  
115 120 125

Asn Pro Gln Gly Ser Phe Asp Cys Ile Gln Gln Thr Phe Ser Ser Ser  
130 135 140

Gly Ala Ser Gln Leu Asn Cys Leu Gly Phe Ile Gln Asp Lys Ile Thr



145                      150                      155                      160  
Val Cys Ala Thr Asn Asp Ser Tyr Gln Met Thr Arg Glu Arg Met Thr  
                         165                      170                      175  
Gln Ala Glu Glu Glu Ser Arg Asn Arg Ser Thr Lys Val Ile Lys Pro  
                         180                      185                      190  
Gly Gly Pro Tyr Val Gly Lys Arg Val Gln Ile Arg Lys Ala Pro Gln  
                         195                      200                      205  
Ala Val Ser Asp Thr Val Pro Glu Arg Lys Arg Ser Thr Pro Met Asn  
                         210                      215                      220  
Pro Ala Asn Thr Ile Arg Lys Thr His Ser Ser Ser Thr Ile Ser Gln  
225                      230                      235                      240  
Arg Pro Tyr Arg Asp Arg Val Ile His Leu Leu Ala Leu Lys Ala Tyr  
                         245                      250                      255  
Lys Lys Pro Glu Leu Leu Ala Arg Leu Gln Lys Asp Gly Val Asn Gln  
                         260                      265                      270  
Lys Asp Lys Asn Ser Leu Gly Ala Ile Leu Gln Gln Val Ala Asn Leu  
                         275                      280                      285  
Asn Ser Lys Asp Leu Ser Tyr Thr Leu Lys Asp Tyr Val Phe Lys Glu  
                         290                      295                      300  
Leu Gln Arg Asp Trp Pro Gly Tyr Ser Glu Ile Asp Arg Arg Ser Leu  
305                      310                      315                      320  
Glu Ser Val Leu Ser Arg Lys Leu Asn Pro Ser Gln Asn Ala Thr Gly  
                         325                      330                      335  
Thr Ser Xaa Ser Glu Ser Pro Val Cys Ser Ser Arg Asp Ala Val Ser  
                         340                      345                      350  
Ser Pro Gln Lys Arg Leu Leu Asp Ser Glu Phe Ile Asp Pro Leu Met  
                         355                      360                      365  
Asn Lys Lys Ala Arg Ile Ser His Leu Thr Asn Arg Val Pro Pro Thr  
                         370                      375                      380  
Leu Asn Gly His Leu Asn Pro Thr Ser Glu Lys Ser Ala Ala Gly Leu  
385                      390                      395                      400  
Pro Leu Pro Pro Ala Ala Ala Ala Ile Pro Thr Pro Pro Pro Leu Pro  
                         405                      410                      415  
Ser Thr Tyr Leu Pro Ile Ser His Pro Pro Gln Ile Val Asn Ser Asn

420	425	430
Ser Asn Ser Pro Ser Thr Pro Glu Gly Arg Gly Thr Gln Asp Leu Pro		
435	440	445
Val Asp Ser Phe Ser Gln Asn Asp Ser Ile Tyr Glu Asp Gln Gln Asp		
450	455	460
Lys Tyr Thr Ser Arg Thr Ser Leu Glu Thr Leu Pro Pro Gly Ser Val		
465	470	475
480		
Leu Leu Lys Cys Pro Lys Pro Met Glu Glu Asn His Ser Met Ser His		
485	490	495
Lys Lys Ser Lys Lys Lys Ser Lys Lys His Lys Glu Lys Asp Gln Ile		
500	505	510
Lys Lys His Asp Ile Glu Thr Ile Glu Glu Lys Glu Glu Asp Leu Lys		
515	520	525
Arg Glu Glu Glu Ile Ala Lys Leu Asn Xaa Ser Ser Pro Asn Ser Xaa		
530	535	540
Gly Gly Val Lys Glu Asp Cys Thr Ala Ser Met Glu Pro Ser Ala Ile		
545	550	555
560		
Glu Leu Pro Asp Tyr Leu Ile Lys Tyr Ile Ala Ile Val Ser Tyr Glu		
565	570	575
Gln Arg Gln Asn Tyr Lys Asp Asp Phe Asn Ala Glu Tyr Asp Glu Tyr		
580	585	590
Arg Ala Leu His Ala Arg Met Glu Thr Val Ala Arg Arg Phe Ile Lys		
595	600	605
Leu Asp Ala Gln Arg Lys Arg Leu Ser Pro Gly Ser Lys Glu Tyr Gln		
610	615	620
Asn Val His Glu Glu Val Leu Gln Glu Tyr Gln Lys Ile Lys Gln Ser		
625	630	635
640		
Ser Pro Asn Tyr His Glu Glu Lys Tyr Arg Cys Glu Tyr Leu His Asn		
645	650	655
Lys Leu Ala His Ile Lys Arg Leu Ile Gly Glu Phe Asp Gln Gln Gln		
660	665	670
Ala Glu Ser Trp Ser		
675		

&lt;210&gt; 1627

&lt;211&gt; 124

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (58)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (108)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (123)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1627

Gly	Pro	Trp	Gly	Gly	Phe	Glu	Leu	Ser	Arg	Leu	Cys	Pro	Tyr	Arg	Leu
1				5					10					15	

Pro	Arg	His	Thr	Arg	Ser	Val	Phe	Pro	Leu	Ser	Pro	Pro	Ser	Arg	Ala
		20						25					30		

Gly	Pro	Ser	Gly	Ile	Glu	Gly	Ala	Gly	Ser	Pro	Arg	Thr	Arg	Ala	Gln
	35					40						45			

Lys	Ser	Pro	Thr	Gly	Ser	Cys	Ile	Phe	Xaa	Arg	Thr	Ile	Pro	Gly	Ala
	50					55						60			

Leu	Arg	Gly	Val	Ser	Gly	Glu	Thr	Gly	His	Arg	Gln	Ser	His	Gly	Pro
65					70					75				80	

Pro	Pro	Lys	Ala	Gln	Ala	Pro	Pro	Ala	Pro	Pro	His	Pro	Ser	Ser	Leu
			85						90					95	

Thr	His	Ala	Ala	Ser	Pro	Pro	Pro	Cys	Arg	Cys	Xaa	Gly	Gln	Ser	Pro
		100						105					110		

Val	Arg	Pro	Lys	Thr	Gly	Leu	Val	Pro	Gly	Xaa	Ala
		115				120					

&lt;210&gt; 1628

&lt;211&gt; 277

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (176)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1628

Thr His Val Val Arg His Ala Tyr Arg Ser Tyr Phe Thr Phe Ile Gly  
1 5 10 15

Arg Val Ala Gly Leu Ala Val Phe His Gly Lys Leu Leu Asp Gly Phe  
20 25 30

Phe Ile Arg Pro Phe Tyr Lys Met Met Leu Gly Lys Gln Ile Thr Leu  
35 40 45

Asn Asp Met Glu Ser Val Asp Ser Glu Tyr Tyr Asn Ser Leu Lys Trp  
50 55 60

Ile Leu Glu Asn Asp Pro Thr Glu Leu Asp Leu Met Phe Cys Ile Asp  
65 70 75 80

Glu Glu Asn Phe Gly Gln Thr Tyr Gln Val Asp Leu Lys Pro Asn Gly  
85 90 95

Ser Glu Ile Met Val Thr Asn Glu Asn Lys Arg Glu Tyr Ile Asp Leu  
100 105 110

Val Ile Gln Trp Arg Phe Val Asn Arg Val Gln Lys Gln Met Asn Ala  
115 120 125

Phe Leu Glu Gly Phe Thr Glu Leu Leu Pro Ile Asp Leu Ile Lys Ile  
130 135 140

Phe Asp Glu Asn Glu Leu Glu Leu Leu Met Cys Gly Leu Gly Asp Val  
145 150 155 160

Asp Val Asn Asp Trp Arg Gln His Ser Ile Tyr Lys Asn Gly Tyr Xaa  
165 170 175

Pro Asn His Pro Val Ile Gln Trp Phe Trp Lys Ala Val Leu Leu Met  
180 185 190

Asp Ala Glu Lys Arg Ile Arg Leu Leu Gln Phe Val Thr Gly Thr Ser  
195 200 205

Arg Val Pro Met Asn Gly Phe Ala Glu Leu Tyr Gly Ser Asn Gly Pro  
210 215 220

Gln Leu Phe Thr Ile Glu Gln Trp Gly Ser Pro Glu Lys Leu Pro Arg

225                      230                      235                      240  
Ala His Thr Cys Phe Asn Arg Leu Asp Leu Pro Pro Tyr Glu Thr Phe  
                         245                      250                      255  
Glu Asp Leu Arg Glu Lys Leu Leu Met Ala Val Glu Asn Ala Gln Gly  
                         260                      265                      270  
Phe Glu Gly Val Asp  
                         275

<210> 1629

<211> 135

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1629

Gly Ala Val Gly Gly Arg Xaa Gly Gly Arg Tyr Ala Gly Arg His Val  
1                      5                      10                      15

Ser Arg Val Arg Ala Leu Tyr Lys Arg Val Leu Gln Leu His Arg Val  
                         20                      25                      30

Leu Pro Pro Asp Leu Lys Ser Leu Gly Asp Gln Tyr Val Lys Asp Glu  
                         35                      40                      45

Phe Arg Arg His Lys Thr Val Gly Ser Asp Glu Ala Gln Arg Phe Leu  
                         50                      55                      60

Gln Glu Trp Glu Val Tyr Ala Thr Ala Leu Leu Gln Gln Ala Asn Glu  
65                      70                      75                      80

Asn Arg Gln Asn Ser Thr Gly Lys Ala Cys Phe Gly Thr Phe Leu Pro  
                         85                      90                      95

Glu Glu Lys Leu Asn Asp Phe Arg Asp Glu Gln Ile Gly Gln Leu Gln  
                         100                      105                      110

Glu Leu Met Gln Glu Ala Thr Lys Pro Asn Arg Gln Phe Ser Ile Ser  
                         115                      120                      125

Glu Ser Met Lys Pro Lys Phe  
                         130                      135

<210> 1630  
<211> 233  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (33)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (195)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (222)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (223)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (227)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (231)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1630  
Met Cys Pro Ser Cys Ser Pro Cys Gly Met Asp Trp Val Val Glu Thr  
1 5 10 15

Met Pro Gln Gly Val Cys Gly Met Ser Pro Ser Val Trp Ser Val Xaa  
20 25 30

Xaa Glu Thr Val Arg Gly Leu Leu His His Pro Thr Leu Pro Asn  
35 40 45

Pro Tyr Thr Met Ala Val Ala Ala Arg Val Thr Ala Ala Thr Thr Val  
50 55 60

Thr His Ile Thr Ala Phe Asp Pro Asp Ser Thr Gly Gln Gln Val Trp  
65 70 75 80

Gln Asp Leu Leu Gln Asp Gly Gln Leu Asp Ser Pro Thr Gly Gln Ser  
85 90 95

Thr Pro Thr Gln Lys Gly Val Gly Ile Ala Gly Ala Val Cys Val Ser  
100 105 110

Ser Lys Leu Arg Pro Arg Gly Gln Cys Arg Leu Glu Phe Ser Leu Ala  
115 120 125

Trp Asp Met Pro Arg Ile Met Phe Gly Ala Lys Gly Gln Val His Tyr  
130 135 140

Arg Arg Tyr Thr Arg Phe Phe Gly Gln Asp Gly Asp Ala Ala Pro Ala  
145 150 155 160

Leu Ser His Tyr Ala Leu Cys Arg Tyr Ala Glu Trp Glu Glu Arg Ile  
165 170 175

Ser Ala Trp Gln Ser Pro Val Leu Asp Asp Arg Ser Leu Pro Ala Trp  
180 185 190

Tyr Lys Xaa Ala Leu Phe Asn Glu Leu Tyr Phe Leu Ala Asp Gly Gly  
195 200 205

Thr Val Trp Leu Glu Val Leu Glu Asp Ile Gln Asp Lys Xaa Xaa Phe  
210 215 220

Tyr Pro Xaa Arg Gly Gln Xaa Ala Tyr  
225 230

<210> 1631

<211> 153

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (118)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1631

Trp Gly Pro Arg Leu Pro Pro Pro Xaa Lys Lys Ala Leu Leu Ala Leu  
1 5 10 15

Lys Lys Gln Ser Ser Ser Ser Thr Thr Ser Gln Gly Gly Val Lys Arg  
20 25 30

Ser Leu Ser Glu Gln Pro Val Met Asp Thr Ala Thr Ala Thr Glu Gln  
35 40 45

Ala Lys Gln Leu Val Lys Ser Gly Ala Ile Ser Ala Ile Lys Ala Glu  
50 55 60

Thr Lys Asn Ser Gly Phe Lys Arg Ser Arg Thr Leu Glu Gly Lys Leu  
65 70 75 80

Lys Asp Pro Glu Lys Gly Pro Val Pro Thr Phe Gln Pro Phe Gln Arg  
85 90 95

Ser Ile Ser Ala Asp Asp Asp Leu Gln Glu Ser Ser Arg Arg Pro Gln  
100 105 110

Arg Lys Ser Leu Tyr Xaa Ser Ser Leu Ala Val Gln Asn Ser Pro Lys  
115 120 125

Gly Cys His Arg Asp Lys Arg Thr Gln Ile Val Tyr Ser Asp Asp Val  
130 135 140

Tyr Lys Glu Asn Leu Val Asp Gly Phe  
145 150

<210> 1632

<211> 224

<212> PRT

<213> Homo sapiens

<400> 1632

Pro Thr Arg Cys Gly Ala Ser Gly Ser Arg Pro Pro Ser Gly Ser Asp  
1 5 10 15

Pro Ala Asn Gly Phe Gly Tyr Ile Phe Met Leu Gly Phe Ile Thr Arg  
20 25 30

Pro Pro His Arg Phe Leu Ser Leu Leu Cys Pro Gly Leu Arg Ile Pro  
35 40 45



Gln Leu Ser Val Leu Cys Ala Gln Pro Arg Pro Arg Ala Met Ala Ile  
50 55 60

Ser Ser Ser Ser Cys Glu Leu Pro Leu Val Ala Val Cys Gln Val Thr  
65 70 75 80

Ser Thr Pro Asp Lys Gln Gln Asn Phe Lys Thr Cys Ala Glu Leu Val  
85 90 95

Arg Glu Ala Ala Arg Leu Gly Ala Cys Leu Ala Phe Leu Pro Glu Ala  
100 105 110

Phe Asp Phe Ile Ala Arg Asp Pro Ala Glu Thr Leu His Leu Ser Glu  
115 120 125

Pro Leu Gly Gly Lys Leu Leu Glu Glu Tyr Thr Gln Leu Ala Arg Glu  
130 135 140

Cys Gly Leu Trp Leu Ser Leu Gly Gly Phe His Glu Arg Gly Gln Asp  
145 150 155 160

Trp Glu Gln Thr Gln Lys Ile Tyr Asn Cys His Val Leu Leu Asn Ser  
165 170 175

Lys Gly Ala Val Val Ala Thr Tyr Arg Lys Thr His Leu Cys Asp Val  
180 185 190

Glu Ile Pro Gly Gln Gly Leu Cys Val Lys Ala Thr Leu Pro Cys Leu  
195 200 205

Gly Pro Val Leu Ser His Leu Ser Ala His Gln Gln Ala Arg Leu Val  
210 215 220

<210> 1633

<211> 668

<212> PRT

<213> Homo sapiens

<400> 1633

Thr Ile Asn Gly Val Ile Leu Ile Ser Val Phe Phe Ser Phe Phe Phe  
1 5 10 15

Leu His Pro Met Leu Ser Val Val Val Cys Val Val Gly Leu Ser Pro  
20 25 30

Gly Gln Tyr Phe Tyr Phe Gln Glu Val Phe Pro Val Leu Ala Ala Lys

35 40 45

His Cys Ile Met Gln Ala Asn Ala Glu Tyr His Gln Ser Ile Leu Ala  
50 55 60

Lys Gln Gln Lys Lys Phe Gly Glu Glu Ile Ala Arg Leu Gln His Ala  
65 70 75 80

Ala Glu Leu Ile Lys Thr Val Ala Ser Arg Tyr Asp Glu Tyr Val Asn  
85 90 95

Val Lys Asp Phe Ser Asp Lys Ile Asn Arg Ala Leu Ala Ala Ala Lys  
100 105 110

Lys Asp Asn Asp Phe Ile Tyr His Asp Arg Val Pro Asp Leu Lys Asp  
115 120 125

Leu Asp Pro Ile Gly Lys Ala Thr Leu Val Lys Ser Thr Pro Val Asn  
130 135 140

Val Pro Ile Ser Gln Lys Phe Thr Asp Leu Phe Glu Lys Met Val Pro  
145 150 155 160

Val Ser Val Gln Gln Ser Leu Ala Ala Tyr Asn Gln Arg Lys Ala Asp  
165 170 175

Leu Val Asn Arg Ser Ile Ala Gln Met Arg Glu Ala Thr Thr Leu Ala  
180 185 190

Asn Gly Val Leu Ala Ser Leu Asn Leu Pro Ala Ala Ile Glu Asp Val  
195 200 205

Ser Gly Asp Thr Val Pro Gln Ser Ile Leu Thr Lys Ser Arg Ser Val  
210 215 220

Ile Glu Gln Gly Gly Ile Gln Thr Val Asp Gln Leu Ile Lys Glu Leu  
225 230 235 240

Pro Glu Leu Leu Gln Arg Asn Arg Glu Ile Leu Asp Glu Ser Leu Arg  
245 250 255

Leu Leu Asp Glu Glu Glu Ala Thr Asp Asn Asp Leu Arg Ala Lys Phe  
260 265 270

Lys Glu Arg Trp Gln Arg Thr Pro Ser Asn Glu Leu Tyr Lys Pro Leu  
275 280 285

Arg Ala Glu Gly Thr Asn Phe Arg Thr Val Leu Asp Lys Ala Val Gln  
290 295 300

Ala Asp Gly Gln Val Lys Glu Cys Tyr Gln Ser His Arg Asp Thr Ile

305                      310                      315                      320  
 Val Leu Leu Cys Lys Pro Glu Pro Glu Leu Asn Ala Ala Ile Pro Ser  
                                  325                      330                      335  
 Ala Asn Pro Ala Lys Thr Met Gln Gly Ser Glu Val Val Asn Val Leu  
                                  340                      345                      350  
 Lys Ser Leu Leu Ser Asn Leu Asp Glu Val Lys Lys Glu Arg Glu Gly  
                                  355                      360                      365  
 Leu Glu Asn Asp Leu Lys Ser Val Asn Phe Asp Met Thr Ser Lys Phe  
                                  370                      375                      380  
 Leu Thr Ala Leu Ala Gln Asp Gly Val Ile Asn Glu Glu Ala Leu Ser  
 385                                   390                      395                      400  
 Val Thr Glu Leu Asp Arg Val Tyr Gly Gly Leu Thr Thr Lys Val Gln  
                                  405                      410                      415  
 Glu Ser Leu Lys Lys Gln Glu Gly Leu Leu Lys Asn Ile Gln Val Ser  
                                  420                      425                      430  
 His Gln Glu Phe Ser Lys Met Lys Gln Ser Asn Asn Glu Ala Asn Leu  
                                  435                      440                      445  
 Arg Glu Glu Val Leu Lys Asn Leu Ala Thr Ala Tyr Asp Asn Phe Val  
                                  450                      455                      460  
 Glu Leu Val Ala Asn Leu Lys Glu Gly Thr Lys Phe Tyr Asn Glu Leu  
 465                                   470                      475                      480  
 Thr Glu Ile Leu Val Arg Phe Gln Asn Lys Cys Ser Asp Ile Val Phe  
                                  485                      490                      495  
 Ala Arg Lys Thr Glu Arg Asp Glu Leu Leu Lys Asp Leu Gln Gln Ser  
                                  500                      505                      510  
 Ile Ala Arg Glu Pro Ser Ala Pro Ser Ile Pro Thr Pro Ala Tyr Gln  
                                  515                      520                      525  
 Ser Ser Pro Ala Gly Gly His Ala Pro Thr Pro Pro Thr Pro Ala Pro  
                                  530                      535                      540  
 Arg Thr Met Pro Pro Thr Lys Pro Gln Pro Pro Ala Arg Pro Pro Pro  
 545                                   550                      555                      560  
 Pro Val Leu Pro Ala Asn Arg Ala Pro Ser Ala Thr Ala Pro Ser Pro  
                                  565                      570                      575  
 Val Gly Ala Gly Thr Ala Ala Pro Ala Pro Ser Gln Thr Pro Gly Ser

580 585 590

Ala Pro Pro Pro Gln Ala Gln Gly Pro Pro Tyr Pro Thr Tyr Pro Gly  
595 600 605

Tyr Pro Gly Tyr Cys Gln Met Pro Met Pro Met Gly Tyr Asn Pro Tyr  
610 615 620

Ala Tyr Gly Gln Tyr Asn Met Pro Tyr Pro Pro Val Tyr His Gln Ser  
625 630 635 640

Pro Gly Gln Ala Pro Tyr Pro Gly Pro Gln Gln Pro Ser Tyr Pro Phe  
645 650 655

Pro Gln Pro Pro Gln Gln Ser Tyr Tyr Pro Gln Gln  
660 665

<210> 1634

<211> 99

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (81)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1634

Gly Glu Ala Ala Lys Met Ser Ser Glu Pro Pro Pro Pro Tyr Pro Gly  
1 5 10 15

Gly Pro Thr Ala Pro Leu Leu Glu Glu Lys Ser Gly Ala Pro Pro Thr  
20 25 30

Pro Gly Arg Ser Ser Pro Ala Val Met Gln Pro Pro Pro Gly Met Pro  
35 40 45

Leu Pro Pro Ala Asp Ile Gly Pro Pro Pro Tyr Glu Pro Pro Gly Xaa  
50 55 60

Pro Met Pro Gln Pro Gly Phe Ile Pro Pro Xaa Met Ser Xaa Asp Gly  
65 70 75 80

Xaa Tyr Met Pro Pro Gly Phe Leu Pro Phe Phe Arg Gly Pro His Pro  
85 90 95

Pro Leu Gly

&lt;210&gt; 1635

&lt;211&gt; 74

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1635

Gly Glu Ala Ala Phe Cys Pro Ser Pro His Ser His Leu Ile Tyr Leu  
1 5 10 15

Ile Gln Ser Gln Leu Leu Lys Phe Gly Lys Asp Gln Ile Ala Leu Gln  
20 25 30

Phe Phe Ser Leu Cys Ser Ile Leu Lys Ser Trp Lys Ile Leu Trp Asn  
35 40 45

Ser Ser Val Tyr Arg Ala Gln Val Lys Ala Leu Ser Lys Val Tyr Leu  
50 55 60

Phe Ile Tyr Tyr Pro Lys Asn Ala Leu Pro  
65 70

&lt;210&gt; 1636

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (48)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1636

Arg His Arg Ser Val Ser Thr Pro Arg Ala Gly Gly Ile Val Trp Phe  
1 5 10 15

His Glu Gly Leu Lys Ser Val Ile Pro Lys Val Gly Leu Gln Ala Ala  
20 25 30

Ala Pro Ser Ile Cys Val Phe Leu Ser Gly Thr Val Gly Leu Tyr Xaa  
35 40 45

Arg Leu Thr Cys Phe Gly Ser Arg Gly Ile Ile Leu Gly Phe Gly Lys  
50 55 60

Thr His Phe  
65

<210> 1637

<211> 64

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1637

Thr Phe Ile Tyr Val Gly Leu Tyr Leu Thr Ile Cys Asn Phe Lys Val  
1 5 10 15

Met Leu Gly Gln Xaa Asn Val Ser Ala Ser Arg Ile Ala Ile Lys Tyr  
20 25 30

His Thr Lys Phe Gly Gly Arg Thr Asp Leu Cys Tyr Lys Glu Met Glu  
35 40 45

Lys Ser Ser Leu Cys His Gly Asp Glu Lys Pro Ala Ser His Ser Asn  
50 55 60

<210> 1638

<211> 93

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (90)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1638

Gln Arg Gly Asp Ser Ala Asp Thr Ala Ser Leu Arg Phe Asn Thr Pro  
1 5 10 15

Ser Phe Asp Leu Ser Cys Pro His Tyr Pro Arg Lys Ile Gln Ser Ser  
20 25 30

Phe Gln Ser Ile Leu Ile Asn Pro Leu Asp Pro Lys Phe Arg Glu Val  
35 40 45

Pro Leu Pro Ser Ser Leu Leu Pro Gly Pro Thr Glu Glu His Pro Thr  
50 55 60

Thr Leu His Gln Leu Leu Lys Thr His Lys Gly Lys Ile Pro Thr Gly  
65 70 75 80

Pro Cys Gln Glu Val Val Glu Leu Pro Xaa Arg Phe His  
85 90

<210> 1639

<211> 222

<212> PRT

<213> Homo sapiens

<400> 1639

His Glu Leu Asn Cys Lys Asp Ala Val Ser Arg Lys Arg Ser His Ser  
1 5 10 15

Ala Ser Glu Lys Ser Gly Thr Gly Thr Ser Ile Ser Lys Arg Leu Asn  
20 25 30

Met Asn Pro Gln Ile Arg Asn Pro Met Lys Ala Met Tyr Pro Gly Thr  
35 40 45

Phe Tyr Phe Gln Phe Lys Asn Leu Trp Glu Ala Asn Asp Arg Asn Glu  
50 55 60

Thr Trp Leu Cys Phe Thr Val Glu Gly Ile Lys Arg Arg Ser Val Val  
65 70 75 80

Ser Trp Lys Thr Gly Val Phe Arg Asn Gln Val Asp Ser Glu Thr His  
85 90 95

Cys His Ala Glu Arg Cys Phe Leu Ser Trp Phe Cys Asp Asp Ile Leu  
100 105 110

Ser Pro Asn Thr Lys Tyr Gln Val Thr Trp Tyr Thr Ser Trp Ser Pro  
 115 120 125

Cys Pro Asp Cys Ala Gly Glu Val Ala Glu Phe Leu Ala Arg His Ser  
 130 135 140

Asn Val Asn Leu Thr Ile Phe Thr Ala Arg Leu Tyr Tyr Phe Gln Tyr  
 145 150 155 160

Pro Cys Tyr Gln Glu Gly Leu Arg Ser Leu Ser Gln Glu Gly Val Ala  
 165 170 175

Val Glu Ile Met Asp Tyr Glu Asp Phe Lys Tyr Cys Trp Glu Asn Phe  
 180 185 190

Val Tyr Asn Asp Asn Glu Pro Phe Lys Pro Trp Lys Gly Leu Lys Thr  
 195 200 205

Asn Phe Arg Leu Leu Lys Arg Arg Leu Arg Glu Ser Leu Gln  
 210 215 220

<210> 1640

<211> 436

<212> PRT

<213> Homo sapiens

<400> 1640

Gly Leu Lys Arg Val Ser Ala Thr Ala Ala His Arg Asn Ala Leu Gln  
 1 5 10 15

Asn Pro Lys Gln Gly Gly Thr Gln Leu Lys Thr Glu Lys Ile His Met  
 20 25 30

Phe Leu Leu Ala Pro Val Ala Thr Gly Ile Asn Ser His Asn Asp Arg  
 35 40 45

Gly Arg Gly Ile Gln Gly Thr Ile Asn Glu Gln Cys Ala Ser Ser Leu  
 50 55 60

Lys Ile Arg Ala Ser His Gly Thr Lys Met Met Thr Pro Glu Val Leu  
 65 70 75 80

Ala Glu Ala Tyr Gly Lys Lys Glu Trp Lys His Phe Leu Ser Asp Thr  
 85 90 95

Gly Met Ala Cys Arg Ser Gly Lys Tyr Tyr Phe Tyr Asp Asn Tyr Phe  
 100 105 110



Asp Leu Pro Gly Ala Leu Leu Cys Ala Arg Val Val Asp Tyr Leu Thr  
115 120 125

Lys Leu Asn Asn Gly Gln Lys Thr Phe Asp Phe Trp Lys Asp Ile Val  
130 135 140

Ala Ala Ile Gln His Asn Tyr Lys Met Ser Ala Phe Lys Glu Asn Cys  
145 150 155 160

Gly Ile Tyr Phe Pro Glu Ile Lys Arg Asp Pro Gly Arg Tyr Leu His  
165 170 175

Ser Cys Pro Glu Ser Val Lys Lys Trp Leu Arg Gln Leu Lys Asn Ala  
180 185 190

Gly Lys Ile Leu Leu Leu Ile Thr Ser Ser His Ser Asp Tyr Cys Arg  
195 200 205

Leu Leu Cys Glu Tyr Ile Leu Gly Asn Asp Phe Thr Asp Leu Phe Asp  
210 215 220

Ile Val Ile Thr Asn Ala Leu Lys Pro Gly Phe Phe Ser His Leu Pro  
225 230 235 240

Ser Gln Arg Pro Phe Arg Thr Leu Glu Asn Asp Glu Glu Gln Glu Ala  
245 250 255

Leu Pro Ser Leu Asp Lys Pro Gly Trp Tyr Ser Gln Gly Asn Ala Val  
260 265 270

His Leu Tyr Glu Leu Leu Lys Lys Met Thr Gly Lys Pro Glu Pro Lys  
275 280 285

Val Val Tyr Phe Gly Asp Ser Met His Ser Asp Ile Phe Pro Ala Arg  
290 295 300

His Tyr Ser Asn Trp Glu Thr Val Leu Ile Leu Glu Glu Leu Arg Gly  
305 310 315 320

Asp Glu Gly Thr Arg Ser Gln Arg Pro Glu Glu Ser Glu Pro Leu Glu  
325 330 335

Lys Lys Gly Lys Tyr Glu Gly Pro Lys Ala Lys Pro Leu Asn Thr Ser  
340 345 350

Ser Lys Lys Trp Gly Ser Phe Phe Ile Asp Ser Val Leu Gly Leu Glu  
355 360 365

Asn Thr Glu Asp Ser Leu Val Tyr Thr Trp Ser Cys Lys Arg Ile Ser  
370 375 380

Thr Tyr Ser Thr Ile Ala Ile Pro Ser Ile Glu Ala Ile Ala Glu Leu  
385 390 395 400

Pro Leu Asp Tyr Lys Phe Thr Arg Phe Ser Ser Ser Asn Ser Lys Thr  
405 410 415

Ala Gly Tyr Tyr Pro Asn Pro Pro Leu Val Leu Ser Ser Asp Glu Thr  
420 425 430

Leu Ile Ser Lys  
435

<210> 1641  
<211> 81  
<212> PRT  
<213> Homo sapiens

<400> 1641  
Pro His Ser Leu Leu Phe Phe Leu Leu Gln Thr Leu Arg Gln Cys Ser  
1 5 10 15

Asn Thr Ser Phe Thr His Pro Pro Asn Asn Ser Val His Ser Val Phe  
20 25 30

Phe Pro Leu Ser Gly Val Ser Ser Met Leu Val Arg Leu Gly Glu His  
35 40 45

Leu Asp Leu Phe His Arg Lys Gly Cys Phe Gln Pro Val Ser Val Met  
50 55 60

Leu Val Leu Leu Gln Gln Ser Lys Ser Lys Gly Phe Arg Ser Leu Phe  
65 70 75 80

Asp

<210> 1642  
<211> 86  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (66)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (73)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1642

Thr Glu Lys Lys Lys Lys Lys Gly Gly Arg Ser Arg Gly Ser Lys Leu  
1 5 10 15

Thr Tyr Ala Cys Met Arg Arg His Ser Ser Ser Ile Val Ser Pro Lys  
20 25 30

Phe Asn Ser Leu Ala Val Val Leu Gln Arg Arg Asp Trp Glu Asn Pro  
35 40 45

Gly Val Thr Gln Leu Asn Arg Leu Ala Ala His Pro Pro Phe Ala Ser  
50 55 60

Trp Xaa Asn Ser Glu Glu Ala Arg Xaa Gly Ser Pro Phe Pro His Asn  
65 70 75 80

Cys Ala Leu Glu Trp Ala  
85

<210> 1643

<211> 118

<212> PRT

<213> Homo sapiens

<400> 1643

His Cys Val Glu Gly Thr Ser Leu Ser Leu Pro Cys Leu Thr Val Ser  
1 5 10 15

Gly Ser Phe Ser Pro Cys Val Ser Trp Cys Ser Gln Pro His Gln Ser  
20 25 30

Pro Cys Arg Glu Leu Thr Ala Phe Thr Leu Lys Ala Arg Val Thr Trp  
35 40 45

Val Val Arg His His Leu Ser Pro Cys Pro His Leu Leu Val Trp Gly  
50 55 60

Phe Ser Gly Glu Leu Thr Ala Val Ser Thr Pro Leu Ser Pro His Pro  
65 70 75 80

Pro Arg Pro Ala Trp Gly Thr His Phe Leu Leu Gly Gly Ala Ser Met  
85 90 95

Val Arg Gly Pro Ala Ser Leu His Thr Ala Arg Thr Ala Leu His Arg  
100 105 110

Pro Thr Pro Tyr Asp Thr  
115

<210> 1644

<211> 52

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (13)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (16)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1644

Arg Leu Ser Glu Ser Leu Ser Val Ser Ser Leu Gln Xaa Arg Ser Xaa  
1 5 10 15

Xaa Val Lys Pro Leu Thr Ala Val Met Ser Glu Val Ile Pro Arg Thr  
20 25 30

Trp Glu Thr Ala Val His Gly Trp Ile Leu Leu Thr Ser Ala Glu Phe  
35 40 45

Cys Gln Val Thr  
50

<210> 1645

<211> 346

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (83)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1645

Pro Pro Ala Ser Thr Leu Pro Trp Asp Leu Met Lys Ser Arg Lys Asn  
 1 5 10 15

Phe Lys Lys Trp Pro Leu Thr Leu Leu Pro Glu Arg Trp Leu Gln Ile  
 20 25 30

Trp Gln Xaa Gly Thr Arg Ser Met Cys Ala Trp Met Ile Asp Ser Phe  
 35 40 45

Gly Asn Glu Glu Gln Arg His Lys Phe Cys Pro Pro Leu Cys Thr Met  
 50 55 60

Glu Lys Phe Ala Ser Tyr Cys Leu Thr Glu Pro Gly Ser Gly Ser Asp  
 65 70 75 80

Ala Ala Xaa Leu Leu Thr Ser Ala Lys Lys Gln Gly Asp His Tyr Ile  
 85 90 95

Leu Asn Gly Ser Lys Ala Phe Ile Ser Gly Ala Gly Glu Ser Asp Ile  
 100 105 110

Tyr Val Val Met Cys Arg Thr Gly Gly Pro Gly Pro Lys Gly Ile Ser  
 115 120 125

Cys Ile Val Val Glu Lys Gly Thr Pro Gly Leu Ser Phe Gly Lys Lys  
 130 135 140

Glu Lys Lys Val Gly Trp Asn Ser Gln Pro Thr Arg Ala Val Ile Phe  
 145 150 155 160

Glu Asp Cys Ala Val Pro Val Ala Asn Arg Ile Gly Ser Glu Gly Gln  
 165 170 175

Gly Phe Leu Ile Ala Val Arg Gly Leu Asn Gly Gly Arg Ile Asn Ile  
 180 185 190

Ala Ser Cys Ser Leu Gly Ala Ala His Ala Ser Val Ile Leu Thr Arg  
 195 200 205

Asp His Leu Asn Val Arg Lys Gln Phe Gly Glu Pro Leu Ala Ser Asn  
 210 215 220

Gln Tyr Leu Gln Phe Thr Leu Ala Asp Met Ala Thr Arg Leu Val Ala  
 225 230 235 240

Ala Arg Leu Met Val Arg Asn Ala Ala Val Ala Leu Gln Glu Glu Arg  
                   245                                  250                                  255

Lys Asp Ala Val Ala Leu Cys Ser Met Ala Lys Leu Phe Ala Thr Asp  
                   260                                  265                                  270

Glu Cys Phe Ala Ile Cys Asn Gln Ala Leu Gln Met His Gly Gly Tyr  
                   275                                  280                                  285

Gly Tyr Leu Lys Asp Tyr Ala Val Gln Gln Tyr Val Arg Asp Ser Arg  
                   290                                  295                                  300

Val His Gln Ile Leu Glu Glu Leu Phe Trp Gln Gly Pro Gly Val Gln  
                   305                                  310                                  315                                  320

Ser Arg Ser Phe Ala Leu Phe Gly Gly Pro Gln Ile Pro Leu Leu Leu  
                   325                                  330                                  335

Pro Phe Ser Ser Gly Asp Leu Arg Glu Gly  
                   340                                  345

<210> 1646

<211> 201

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1646

Cys Asn Leu Ala Lys Xaa Val Ile Ser Ile Ser Phe Leu Lys Glu Glu  
                   1                                  5                                  10                                  15

Glu Gln Glu Asp Glu Glu Glu Ile Asp Val Val Ser Val Glu Lys Arg  
                   20                                  25                                  30

Gln Ala Pro Gly Lys Arg Ser Glu Ser Gly Ser Pro Ser Ala Gly Gly  
                   35                                  40                                  45

His Ser Lys Pro Pro His Ser Pro Leu Val Leu Lys Arg Cys His Val  
                   50                                  55                                  60

Ser Thr His Gln His Asn Tyr Ala Ala Pro Pro Ser Thr Arg Lys Asp  
                   65                                  70                                  75                                  80

Tyr Pro Ala Ala Lys Arg Val Lys Leu Asp Ser Val Arg Val Leu Arg  
                   85                                  90                                  95

Gln Ile Ser Asn Asn Arg Lys Cys Thr Ser Pro Arg Ser Ser Asp Thr  
100 105 110

Glu Glu Asn Val Lys Arg Arg Thr His Asn Val Leu Glu Arg Gln Arg  
115 120 125

Arg Asn Glu Leu Lys Arg Ser Phe Phe Ala Leu Arg Asp Gln Ile Pro  
130 135 140

Glu Leu Glu Asn Asn Glu Lys Ala Pro Lys Val Val Ile Leu Lys Lys  
145 150 155 160

Ala Thr Ala Tyr Ile Leu Ser Val Gln Ala Glu Glu Gln Lys Leu Ile  
165 170 175

Ser Glu Glu Asp Leu Leu Arg Lys Arg Arg Glu Gln Leu Lys His Lys  
180 185 190

Leu Glu Gln Leu Arg Asn Ser Cys Ala  
195 200

<210> 1647

<211> 84

<212> PRT

<213> Homo sapiens

<400> 1647

Ser Ile Tyr Asp Ser Ser Lys Lys Asn His Leu Leu Tyr Ala Gly Asp  
1 5 10 15

Met Phe Arg Asp Leu Ser Glu Lys Leu Ala Trp Phe Glu Gly Thr Gln  
20 25 30

Tyr His Phe Asn Leu Leu Lys Ile Ser Val Phe Leu Leu Phe Phe Cys  
35 40 45

Cys His Cys Gln Ser Ala Ile Phe Phe Thr Ile Leu Leu Lys Tyr Tyr  
50 55 60

Cys Leu Leu Tyr Leu Phe Asn Val His Ile Leu Lys Lys Ser Ser Leu  
65 70 75 80

Tyr Glu Leu Phe

<210> 1648

<211> 60  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (18)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (26)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (29)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (44)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1648

Leu Lys Ile Asn Tyr Ile Lys Ile Ser Phe Phe Val Leu Val Phe Phe  
1 5 10 15

Leu Xaa Thr Leu Cys Phe Lys Tyr Lys Xaa Lys Tyr Xaa Ile Tyr Phe  
20 25 30

Cys Val Leu Pro Ser Glu Leu Lys Phe Pro Met Xaa Leu Thr Glu Leu  
35 40 45

Gly Leu Ala Leu Gly Glu Glu Trp Thr Ala Ala Gly  
50 55 60

<210> 1649  
<211> 390  
<212> PRT  
<213> Homo sapiens

<400> 1649

Ala Arg Gly Glu Cys Cys Arg Gly Gly Leu Trp Glu Lys Met Ala Ala  
1 5 10 15

Ala Ala Gln Ser Arg Val Val Arg Val Leu Ser Met Ser Arg Ser Ala  
20 25 30



Ile Thr Ala Ile Ala Thr Ser Val Cys His Gly Pro Pro Cys Arg Gln  
35 40 45

Leu His His Ala Leu Met Pro His Gly Lys Gly Gly Arg Ser Ser Val  
50 55 60

Ser Gly Ile Val Ala Thr Val Phe Gly Ala Thr Gly Phe Leu Gly Arg  
65 70 75 80

Tyr Val Val Asn His Leu Gly Arg Met Gly Ser Gln Val Ile Ile Pro  
85 90 95

Tyr Arg Cys Asp Lys Tyr Asp Ile Met His Leu Arg Pro Met Gly Asp  
100 105 110

Leu Gly Gln Leu Leu Phe Leu Glu Trp Asp Ala Arg Asp Lys Asp Ser  
115 120 125

Ile Arg Arg Val Val Gln His Ser Asn Val Val Ile Asn Leu Ile Gly  
130 135 140

Arg Asp Trp Glu Thr Lys Asn Phe Asp Phe Glu Asp Val Phe Val Lys  
145 150 155 160

Ile Pro Gln Ala Ile Ala Gln Leu Ser Lys Glu Ala Gly Val Glu Lys  
165 170 175

Phe Ile His Val Ser His Leu Asn Ala Asn Ile Lys Ser Ser Ser Arg  
180 185 190

Tyr Leu Arg Asn Lys Ala Val Gly Glu Lys Val Val Arg Asp Ala Phe  
195 200 205

Pro Glu Ala Ile Ile Val Lys Pro Ser Asp Ile Phe Gly Arg Glu Asp  
210 215 220

Arg Phe Leu Asn Ser Phe Ala Ser Met His Arg Phe Gly Pro Ile Pro  
225 230 235 240

Leu Gly Ser Leu Gly Trp Lys Thr Val Lys Gln Pro Val Tyr Val Val  
245 250 255

Asp Val Ser Lys Gly Ile Val Asn Ala Val Lys Asp Pro Asp Ala Asn  
260 265 270

Gly Lys Ser Phe Ala Phe Val Gly Pro Ser Arg Tyr Leu Leu Phe His  
275 280 285

Leu Val Lys Tyr Ile Phe Ala Val Ala His Arg Leu Phe Leu Pro Phe  
290 295 300

Pro Leu Pro Leu Phe Ala Tyr Arg Trp Val Ala Arg Val Phe Glu Ile  
 305 310 315 320

Ser Pro Phe Glu Pro Trp Ile Thr Arg Asp Lys Val Glu Arg Met His  
 325 330 335

Ile Thr Asp Met Lys Leu Pro His Leu Pro Gly Leu Glu Asp Leu Gly  
 340 345 350

Ile Gln Ala Thr Pro Leu Glu Leu Lys Ala Ile Glu Val Leu Arg Arg  
 355 360 365

His Arg Thr Tyr Arg Trp Leu Ser Ala Glu Ile Glu Asp Val Lys Pro  
 370 375 380

Ala Lys Thr Val Asn Ile  
 385 390

<210> 1650

<211> 99

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (58)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (81)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (92)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1650

Gly Ser Met Gly Gln Ala Gln Ser Lys Pro Thr Pro Pro Gly Thr Met  
 1 5 10 15

Leu Lys Asn Phe Lys Lys Gly Phe Xaa Gly Asp Tyr Gly Val Thr Met  
 20 25 30

Thr Pro Gly Lys Leu Arg Thr Leu Cys Glu Ile Asp Trp Pro Ala Leu  
 35 40 45

Glu Val Gly Trp Pro Ser Glu Gly Ser Xaa Asp Arg Ser Leu Val Ser  
 50 55 60

Lys Val Trp His Lys Val Thr Cys Lys Pro Gly Cys Pro Asp Gln Phe  
 65 70 75 80

Xaa Tyr Ile Asp Thr Trp Leu Gln Leu Val Leu Xaa Pro Ser Tyr Pro  
 85 90 95

His Gly Gly

<210> 1651

<211> 153

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (86)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1651

Ala Gly Thr Gly Gly Arg Arg Trp Gly Asn Arg Gly Ser Val Arg Leu  
 1 5 10 15

Arg Val Arg Gly Ser Asp Trp Ala Glu Gln Ala Ser His Arg Arg Val  
 20 25 30

Thr Ala Arg Arg Pro Arg Ser Glu Leu Pro Gly Gln Pro Pro Phe Cys  
 35 40 45

Trp Arg Trp Glu Arg Met Trp Ala Trp Gly Trp Gly Gly Ala Lys Leu  
 50 55 60

Arg Gly Arg Ala Ala Asp Thr Leu Lys Leu Arg Ala Gly Arg Ala Gln  
 65 70 75 80

Arg Lys Gly Arg Arg Xaa His Gly Tyr Pro Ser Val Arg Gly Ser Ser  
 85 90 95

Ser Phe Phe Trp Arg Ala Gln Gly Ala Ala Gly Val Met Ser Pro Trp  
 100 105 110

Val Leu Ala Pro Thr Ala Lys Phe Ala Trp Pro Gly Pro Pro Ser Arg

115

120

125

Gly Leu Thr Arg His Thr Asp Gln Asn Pro Glu Gln Ala Val Leu Ser  
 130 135 140

Ile Leu Arg Leu Leu Arg Leu Pro Arg  
 145 150

&lt;210&gt; 1652

&lt;211&gt; 312

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (289)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1652

Thr Phe Ile Trp Leu Ile Leu Ile Met Asn Arg Ala Phe Ser Arg Lys  
 1 5 10 15

Lys Asp Lys Thr Trp Met His Thr Pro Glu Ala Leu Ser Lys His Phe  
 20 25 30

Ile Pro Tyr Asn Ala Lys Phe Leu Gly Ser Thr Glu Val Glu Gln Pro  
 35 40 45

Lys Gly Thr Glu Val Val Arg Asp Ala Val Arg Lys Leu Lys Phe Ala  
 50 55 60

Arg His Ile Lys Lys Ser Glu Gly Gln Lys Ile Pro Lys Val Glu Leu  
 65 70 75 80

Gln Ile Ser Ile Tyr Gly Val Lys Ile Leu Glu Pro Lys Thr Lys Glu  
 85 90 95

Val Gln His Asn Cys Gln Leu His Arg Ile Ser Phe Cys Ala Asp Asp  
 100 105 110

Lys Thr Asp Lys Arg Ile Phe Thr Phe Ile Cys Lys Asp Ser Glu Ser  
 115 120 125

Asn Lys His Leu Cys Tyr Val Phe Asp Ser Glu Lys Cys Ala Glu Glu  
 130 135 140

Ile Thr Leu Thr Ile Gly Gln Ala Phe Asp Leu Ala Tyr Arg Lys Phe  
 145 150 155 160

Leu Glu Ser Gly Gly Lys Asp Val Glu Thr Arg Lys Gln Ile Ala Gly  
                   165                  170                  175

Leu Gln Lys Arg Ile Gln Asp Leu Glu Thr Glu Asn Met Glu Leu Lys  
                   180                  185                  190

Asn Lys Val Gln Asp Leu Glu Asn Gln Leu Arg Ile Thr Gln Val Ser  
                   195                  200                  205

Ala Pro Pro Ala Gly Ser Met Thr Pro Lys Ser Pro Ser Thr Asp Ile  
                   210                  215                  220

Phe Asp Met Ile Pro Phe Ser Pro Ile Ser His Gln Ser Ser Met Pro  
                   225                  230                  235                  240

Thr Arg Asn Gly Thr Gln Pro Pro Pro Val Pro Ser Arg Ser Thr Glu  
                   245                  250                  255

Ile Lys Arg Asp Leu Phe Gly Ala Glu Pro Phe Asp Pro Phe Asn Cys  
                   260                  265                  270

Gly Ala Ala Asp Phe Pro Pro Asp Ile Gln Ser Lys Leu Asp Glu Met  
                   275                  280                  285

Xaa Glu Gly Phe Lys Met Gly Leu Thr Leu Glu Gly Thr Val Phe Cys  
                   290                  295                  300

Leu Asp Pro Leu Asp Ser Arg Cys  
                   305                  310

<210> 1653

<211> 50

<212> PRT

<213> Homo sapiens

<400> 1653

Tyr Gly Leu Gly Lys Lys Thr Lys Gln Ala Ser Cys Cys Leu Phe Tyr  
           1                  5                  10                  15

Ser Asn Ile Leu Leu His Met Ile Asp Ile Phe Val Val Gly Lys Trp  
                   20                  25                  30

Asp Ala Pro Gln Ile Leu Lys Val Leu Ala Asp Cys Ile Leu Ser Leu  
                   35                  40                  45

Lys Ile  
           50

<210> 1654  
<211> 117  
<212> PRT  
<213> Homo sapiens

<400> 1654  
Tyr Lys Asn Asp Arg Ser Ser Tyr Glu Arg His Ala Asn Glu Thr Pro  
1 5 10 15  
Ser Ser Gly Glu Ala Leu Glu Ser Glu Leu Ser Phe Phe Leu Met Ser  
20 25 30  
Ser Asp Ala Ala Ser Phe Leu Ile Phe Leu Lys Thr Val Cys Phe Cys  
35 40 45  
Gly Met Tyr Ile Cys Thr Pro Asn Tyr Leu Ala Leu Gly Asn His Ser  
50 55 60  
Thr Thr Gln Arg Gln Leu Asn Lys Glu Lys Phe Asn Phe Lys Tyr Gln  
65 70 75 80  
Val Leu Ser Asn Ile Ser Gln Thr Ser Asp Phe Ile Lys Gly Leu Pro  
85 90 95  
Ala Asn Lys Val His Pro Lys Tyr Thr Gly Glu Lys Ala Arg Leu Leu  
100 105 110  
Gln Gly Pro Arg Val  
115

<210> 1655  
<211> 373  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (144)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (290)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (325)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (328)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1655

Val Met Ser Thr Ala Ala Leu Ile Thr Leu Val Arg Ser Gly Gly Asn  
1 5 10 15

Gln Val Arg Arg Arg Val Leu Leu Ser Ser Arg Leu Leu Gln Asp Asp  
20 25 30

Arg Arg Val Thr Pro Thr Cys His Ser Ser Thr Ser Glu Pro Arg Cys  
35 40 45

Ser Arg Phe Asp Pro Asp Gly Ser Gly Ser Pro Ala Thr Trp Asp Asn  
50 55 60

Phe Gly Ile Trp Asp Asn Arg Ile Asp Glu Pro Ile Leu Leu Pro Pro  
65 70 75 80

Ser Ile Lys Tyr Gly Lys Pro Ile Pro Lys Ile Ser Leu Glu Asn Val  
85 90 95

Gly Cys Ala Ser Gln Ile Gly Lys Arg Lys Glu Asn Glu Asp Arg Phe  
100 105 110

Asp Phe Ala Gln Leu Thr Asp Glu Val Leu Tyr Phe Ala Val Tyr Asp  
115 120 125

Gly His Gly Gly Pro Ala Ala Ala Asp Phe Cys His Thr His Met Xaa  
130 135 140

Lys Cys Ile Met Asp Leu Leu Pro Lys Glu Lys Asn Leu Glu Thr Leu  
145 150 155 160

Leu Thr Leu Ala Phe Leu Glu Ile Asp Lys Ala Phe Ser Ser His Ala  
165 170 175

Arg Leu Ser Ala Asp Ala Thr Leu Leu Thr Ser Gly Thr Thr Ala Thr  
180 185 190

Val Ala Leu Leu Arg Asp Gly Ile Glu Leu Val Val Ala Ser Val Gly  
195 200 205

Asp Ser Arg Ala Ile Leu Cys Arg Lys Gly Lys Pro Met Lys Leu Thr  
210 215 220

Ile Asp His Thr Pro Glu Arg Lys Asp Glu Lys Glu Arg Ile Lys Lys

225                      230                      235                      240  
 Cys Gly Gly Phe Val Ala Trp Asn Ser Leu Gly Gln Pro His Val Asn  
                                  245                      250                      255  
 Gly Arg Leu Ala Met Thr Arg Ser Ile Gly Asp Leu Asp Leu Lys Thr  
                                  260                      265                      270  
 Ser Gly Val Ile Ala Glu Pro Glu Thr Lys Arg Ile Lys Leu His His  
                                  275                      280                      285  
 Ala Xaa Asp Ser Phe Leu Val Leu Thr Thr Asp Gly Ile Asn Phe Met  
                                  290                      295                      300  
 Val Asn Ser Gln Glu Ile Cys Asp Phe Val Asn Gln Cys His Asp Pro  
 305                                   310                      315                      320  
 Asn Glu Ala Ala Xaa Ala Val Xaa Glu Gln Ala Ile Gln Tyr Gly Thr  
                                  325                      330                      335  
 Glu Asp Asn Ser Thr Ala Val Val Val Pro Phe Gly Ala Trp Gly Lys  
                                  340                      345                      350  
 Tyr Lys Asn Ser Glu Ile Asn Phe Ser Phe Ser Arg Ser Phe Ala Ser  
                                  355                      360                      365  
 Ser Gly Arg Trp Ala  
                                  370

<210> 1656  
 <211> 82  
 <212> PRT  
 <213> Homo sapiens

<400> 1656  
 Arg Pro Thr Arg Pro Pro Gly Arg Thr Ala Ser Arg Leu Ala Glu Cys  
   1                      5                      10                      15  
 Gly Leu Ala Gly Ser Ala Val Ser Gln Arg Glu Gln Thr Ser Pro Ser  
                                  20                      25                      30  
 Pro Ser Gly Gln Leu Arg Glu Lys Asn Phe Arg Glu Phe Pro Ala Gly  
                                  35                      40                      45  
 Lys Ala Val Ala Ala Leu Thr Ala Cys Phe Gly Asp Pro Arg Arg Arg  
                                  50                      55                      60  
 Arg Arg His Ser Tyr Leu Pro Thr Lys Lys Ala Pro Pro Pro Ser Ser  
                                  65                      70                      75                      80



Val Ser

<210> 1657

<211> 273

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (30)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1657

Val Ala Arg Ser Ser Ser Glu Leu Pro Arg Arg Leu Val Cys Ser Lys  
1 5 10 15

Leu Arg Ala Asp Pro Gly Arg Leu Thr Pro Asp Ala Cys Xaa Arg Pro  
20 25 30

Gly Met Ser Arg Tyr Leu Leu Pro Leu Ser Ala Leu Gly Thr Val Ala  
35 40 45

Gly Ala Ala Val Leu Leu Lys Asp Tyr Val Thr Gly Gly Ala Cys Pro  
50 55 60

Ser Lys Ala Thr Ile Pro Gly Lys Thr Val Ile Val Thr Gly Ala Asn  
65 70 75 80

Thr Gly Ile Gly Lys Gln Thr Ala Leu Glu Leu Ala Arg Arg Gly Gly  
85 90 95

Asn Ile Ile Leu Ala Cys Arg Asp Met Glu Lys Cys Glu Ala Ala Ala  
100 105 110

Lys Asp Ile Arg Gly Glu Thr Leu Asn His His Val Asn Ala Arg His  
115 120 125

Leu Asp Leu Ala Ser Leu Lys Ser Ile Arg Glu Phe Ala Ala Lys Ile  
130 135 140

Ile Glu Glu Glu Glu Arg Val Asp Ile Leu Ile Asn Asn Ala Gly Val  
145 150 155 160

Met Arg Cys Pro His Trp Thr Thr Glu Asp Gly Phe Glu Met Gln Phe  
165 170 175

Gly Val Asn His Leu Gly His Phe Leu Leu Thr Asn Leu Leu Leu Asp

180                      185                      190  
 Lys Leu Lys Ala Ser Ala Pro Ser Arg Ile Ile Asn Leu Ser Ser Leu  
     195                      200                      205  
 Ala His Val Ala Gly His Ile Asp Phe Asp Asp Leu Asn Trp Gln Thr  
     210                      215                      220  
 Arg Lys Tyr Asn Thr Lys Ala Ala Tyr Cys Gln Ser Lys Leu Ala Ile  
 225                      230                      235                      240  
 Val Leu Phe Thr Lys Glu Leu Ser Arg Arg Leu Gln Gly Thr Gly Ala  
                     245                      250                      255  
 Leu Gly Ser Ala Ser Leu Leu Leu Tyr Ser Glu Pro Arg Ala Ala Phe  
                     260                      265                      270

Pro

<210> 1658  
 <211> 240  
 <212> PRT  
 <213> Homo sapiens

<400> 1658  
 Tyr Leu Cys Ile Leu Gln Ala Ser Lys Leu Glu Asp Leu Arg Val Lys  
     1                      5                      10                      15  
 Leu Lys Lys Glu Gly Tyr Ser Asn Ile Ser Tyr Ile Val Val Asn His  
                     20                      25                      30  
 Gln Gly Ile Ser Ser Arg Leu Lys Tyr Thr His Leu Lys Asn Lys Val  
                     35                      40                      45  
 Ser Glu His Ile Pro Val Tyr Gln Gln Glu Glu Asn Gln Thr Asp Val  
     50                      55                      60  
 Trp Thr Leu Leu Asn Gly Ser Lys Asp Asp Phe Leu Ile Tyr Asp Arg  
 65                      70                      75                      80  
 Cys Gly Arg Leu Val Tyr His Leu Gly Leu Pro Phe Ser Phe Leu Thr  
                     85                      90                      95  
 Phe Pro Tyr Val Glu Glu Ala Ile Lys Ile Ala Tyr Cys Glu Lys Lys  
                     100                      105                      110  
 Cys Gly Asn Cys Ser Leu Thr Thr Leu Lys Asp Glu Asp Phe Cys Lys  
                     115                      120                      125

Arg Val Ser Leu Ala Thr Val Asp Lys Thr Val Glu Thr Pro Ser Pro  
 130 135 140  
 His Tyr His His Glu His His His Asn His Gly His Gln His Leu Gly  
 145 150 155 160  
 Ser Ser Glu Leu Ser Glu Asn Gln Gln Pro Gly Ala Pro Asn Ala Pro  
 165 170 175  
 Thr His Pro Ala Pro Pro Gly Leu His His His His Lys His Lys Gly  
 180 185 190  
 Gln His Arg Gln Gly His Pro Glu Asn Arg Asp Met Pro Ala Ser Glu  
 195 200 205  
 Asp Leu Gln Asp Leu Gln Lys Lys Leu Cys Arg Lys Arg Cys Ile Asn  
 210 215 220  
 Gln Leu Leu Cys Lys Leu Pro Thr Asp Ser Glu Leu Ala Pro Arg Ser  
 225 230 235 240

&lt;210&gt; 1659

&lt;211&gt; 221

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (1)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1659

Xaa Thr Arg Gly Tyr Gly Cys Glu Lys Thr Thr Glu Gly Gly Ser Gln  
 1 5 10 15

Gly Pro Leu Pro Ala Leu Ala Ala Gly Ser Thr Phe Pro Val Leu Ala  
 20 25 30

Cys Ser Ser Ala Met Ala Pro Lys Gly Ser Ser Lys Gln Gln Ser Glu  
 35 40 45

Glu Asp Leu Leu Leu Gln Asp Phe Ser Arg Asn Leu Ser Ala Lys Ser  
 50 55 60

Ser Ala Leu Phe Phe Gly Asn Ala Phe Ile Val Ser Ala Ile Pro Ile

65		70		75		80									
Trp	Leu	Tyr	Trp	Arg	Ile	Trp	His	Met	Asp	Leu	Ile	Gln	Ser	Ala	Val
				85					90					95	
Leu	Tyr	Ser	Val	Met	Thr	Leu	Val	Ser	Thr	Tyr	Leu	Val	Ala	Phe	Ala
			100					105					110		
Tyr	Lys	Asn	Val	Lys	Phe	Val	Leu	Lys	His	Lys	Val	Ala	Gln	Lys	Arg
		115					120					125			
Glu	Asp	Ala	Val	Ser	Lys	Glu	Val	Thr	Arg	Lys	Leu	Ser	Glu	Ala	Asp
		130				135					140				
Asn	Arg	Lys	Met	Ser	Arg	Lys	Glu	Lys	Asp	Glu	Arg	Ile	Leu	Trp	Lys
145					150				155					160	
Lys	Asn	Glu	Val	Ala	Asp	Tyr	Glu	Ala	Thr	Thr	Phe	Ser	Ile	Phe	Tyr
			165						170					175	
Asn	Asn	Thr	Leu	Phe	Leu	Val	Val	Val	Ile	Val	Ala	Ser	Phe	Phe	Ile
			180					185					190		
Leu	Lys	Asn	Phe	Asn	Pro	Thr	Val	Asn	Tyr	Ile	Leu	Ser	Ile	Ser	Ala
		195					200					205			
Ser	Ser	Gly	Leu	Ile	Ala	Leu	Leu	Ser	Thr	Gly	Ser	Lys			
		210				215					220				

&lt;210&gt; 1660

&lt;211&gt; 421

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (140)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (164)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (167)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (321)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (383)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (403)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1660

Glu Leu Gly Ala Gly Gly Asp Gly His Arg Gly Gly Asp Gly Ala Val  
1 5 10 15

Arg Ser Glu Thr Ala Pro Asp Ser Tyr Lys Val Gln Asp Lys Lys Asn  
20 25 30

Ala Ser Ser Arg Pro Ala Ser Ala Ile Ser Gly Gln Asn Asn Asn His  
35 40 45

Ser Gly Asn Lys Pro Asp Pro Pro Pro Val Leu Arg Val Asp Asp Arg  
50 55 60

Gln Arg Leu Ala Arg Glu Arg Arg Glu Glu Arg Glu Lys Gln Leu Ala  
65 70 75 80

Ala Arg Glu Ile Val Trp Leu Glu Arg Glu Glu Arg Ala Arg Gln His  
85 90 95

Tyr Glu Lys His Leu Glu Glu Arg Lys Lys Arg Leu Glu Glu Gln Arg  
100 105 110

Gln Lys Glu Glu Arg Arg Arg Ala Ala Val Glu Glu Lys Arg Arg Gln  
115 120 125

Arg Leu Glu Glu Asp Lys Glu Arg His Glu Ala Xaa Val Arg Arg Thr  
130 135 140

Met Glu Arg Ser Gln Lys Pro Lys Gln Lys His Asn Arg Trp Ser Trp  
145 150 155 160

Gly Gly Ser Xaa His Gly Xaa Pro Ser Ile His Ser Ala Ala Arg Arg  
165 170 175

Leu Gln Leu Ser Pro Trp Glu Ser Ser Val Val Asn Arg Leu Leu Thr  
180 185 190

Pro Thr His Ser Phe Leu Ala Arg Ser Lys Ser Thr Ala Ala Leu Ser  
195 200 205

Gly Glu Ala Ala Ser Cys Ser Pro Ile Ile Met Pro Tyr Lys Ala Ala  
210 215 220

His Ser Arg Asn Ser Met Asp Arg Pro Lys Leu Phe Val Thr Pro Pro  
225 230 235 240

Glu Gly Ser Ser Arg Arg Arg Ile Ile His Gly Thr Ala Ser Tyr Lys  
245 250 255

Lys Glu Arg Glu Arg Glu Asn Val Leu Phe Leu Thr Ser Gly Thr Arg  
260 265 270

Arg Ala Val Ser Pro Ser Asn Pro Lys Ala Arg Gln Pro Ala Arg Ser  
275 280 285

Arg Leu Trp Leu Pro Ser Lys Ser Leu Pro His Leu Pro Gly Thr Pro  
290 295 300

Arg Pro Thr Ser Ser Leu Pro Pro Gly Ser Val Lys Ala Ala Pro Ala  
305 310 315 320

Xaa Val Arg Pro Pro Ser Pro Gly Asn Ile Arg Pro Val Lys Arg Glu  
325 330 335

Val Lys Val Glu Pro Glu Lys Lys Asp Pro Glu Lys Glu Pro Gln Lys  
340 345 350

Val Ala Asn Glu Pro Ser Leu Lys Gly Arg Ala Pro Leu Val Lys Val  
355 360 365

Glu Glu Ala Thr Val Glu Glu Arg Thr Pro Ala Glu Pro Glu Xaa Gly  
370 375 380

Leu Leu Leu Gln Pro Trp Pro Gln Leu Gln Pro Arg Pro Gln Leu Gln  
385 390 395 400

Pro Arg Xaa Gln Leu Gln Pro Arg Ser Pro Pro Gln Pro Trp Ser Gln  
405 410 415

Pro Arg His Pro Leu  
420

&lt;210&gt; 1661

&lt;211&gt; 468

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1661

Arg	Xaa	Thr	Thr	Ser	Gly	Thr	Leu	Asp	Phe	Asp	Glu	Val	Val	Asn	Asp
1				5				10						15	
Ala	Asp	Ile	Ile	Leu	Val	Glu	Phe	Tyr	Ala	Pro	Trp	Cys	Gly	His	Cys
		20						25					30		
Lys	Lys	Leu	Ala	Pro	Glu	Tyr	Glu	Lys	Ala	Ala	Lys	Glu	Leu	Ser	Lys
		35					40					45			
Arg	Ser	Pro	Pro	Ile	Pro	Leu	Ala	Lys	Val	Asp	Ala	Thr	Ala	Glu	Thr
	50					55				60					
Asp	Leu	Ala	Lys	Arg	Phe	Asp	Val	Ser	Gly	Tyr	Pro	Thr	Leu	Lys	Ile
65				70					75					80	
Phe	Arg	Lys	Gly	Arg	Pro	Tyr	Asp	Tyr	Asn	Gly	Pro	Arg	Glu	Lys	Tyr
			85						90					95	
Gly	Ile	Val	Asp	Tyr	Met	Ile	Glu	Gln	Ser	Gly	Pro	Pro	Ser	Lys	Glu
		100						105					110		
Ile	Leu	Thr	Leu	Lys	Gln	Val	Gln	Glu	Phe	Leu	Lys	Asp	Gly	Asp	Asp
	115						120					125			
Val	Ile	Ile	Ile	Gly	Val	Phe	Lys	Gly	Glu	Ser	Asp	Pro	Ala	Tyr	Gln
	130					135					140				
Gln	Tyr	Gln	Asp	Ala	Ala	Asn	Asn	Leu	Arg	Glu	Asp	Tyr	Lys	Phe	His
145				150					155					160	
His	Thr	Phe	Ser	Thr	Glu	Ile	Ala	Lys	Phe	Leu	Lys	Val	Ser	Gln	Gly
			165					170						175	
Gln	Leu	Val	Val	Met	Gln	Pro	Glu	Lys	Phe	Gln	Ser	Lys	Tyr	Glu	Pro
		180					185						190		
Arg	Ser	His	Met	Met	Asp	Val	Gln	Gly	Ser	Thr	Gln	Asp	Ser	Ala	Ile
	195						200					205			
Lys	Asp	Phe	Val	Leu	Lys	Tyr	Ala	Leu	Pro	Leu	Val	Gly	His	Arg	Lys
	210					215					220				
Val	Ser	Asn	Asp	Ala	Lys	Arg	Tyr	Thr	Arg	Arg	Pro	Leu	Val	Val	Val

225                      230                      235                      240  
Tyr Tyr Ser Val Asp Phe Ser Phe Asp Tyr Arg Ala Ala Thr Gln Phe  
                         245                      250                      255  
Trp Arg Ser Lys Val Leu Glu Val Ala Lys Asp Phe Pro Glu Tyr Thr  
                         260                      265                      270  
Phe Ala Ile Ala Asp Glu Glu Asp Tyr Ala Gly Glu Val Lys Asp Leu  
                         275                      280                      285  
Gly Leu Ser Glu Ser Gly Glu Asp Val Asn Ala Ala Ile Leu Asp Glu  
                         290                      295                      300  
Ser Gly Lys Lys Phe Ala Met Glu Pro Glu Glu Phe Asp Ser Asp Thr  
305                      310                      315                      320  
Leu Arg Glu Phe Val Thr Ala Phe Lys Lys Gly Lys Leu Lys Pro Val  
                         325                      330                      335  
Ile Lys Ser Gln Pro Val Pro Lys Asn Asn Lys Gly Pro Val Lys Val  
                         340                      345                      350  
Val Val Gly Lys Thr Phe Asp Ser Ile Val Met Asp Pro Lys Lys Asp  
                         355                      360                      365  
Val Leu Ile Glu Phe Tyr Ala Pro Trp Cys Gly His Cys Lys Gln Leu  
                         370                      375                      380  
Glu Pro Val Tyr Asn Ser Leu Ala Lys Lys Tyr Lys Gly Gln Lys Gly  
385                      390                      395                      400  
Leu Val Ile Ala Lys Met Asp Ala Thr Ala Asn Asp Val Pro Ser Asp  
                         405                      410                      415  
Arg Tyr Lys Val Glu Gly Phe Pro Thr Ile Tyr Phe Ala Pro Ser Gly  
                         420                      425                      430  
Asp Lys Lys Asn Pro Val Lys Phe Glu Gly Gly Asp Arg Asp Leu Glu  
                         435                      440                      445  
His Leu Ser Lys Phe Ile Glu Glu His Ala Thr Lys Leu Ser Arg Thr  
                         450                      455                      460  
Lys Glu Glu Leu  
465

&lt;210&gt; 1662

&lt;211&gt; 355



<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (262)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1662

Ala Ala Gly Ile Arg Xaa Arg Arg Gly Gly Cys Lys Met Pro Leu Pro  
1 5 10 15

Val Gln Val Phe Asn Leu Gln Gly Ala Val Glu Pro Met Gln Ile Asp  
20 25 30

Val Asp Pro Gln Glu Asp Pro Gln Asn Ala Pro Asp Val Asn Tyr Val  
35 40 45

Val Glu Asn Pro Ser Leu Asp Leu Glu Gln Tyr Ala Ala Ser Tyr Ser  
50 55 60

Gly Leu Met Arg Ile Glu Arg Leu Gln Phe Ile Ala Asp His Cys Pro  
65 70 75 80

Thr Leu Arg Val Glu Ala Leu Lys Met Ala Leu Ser Phe Val Gln Arg  
85 90 95

Thr Phe Asn Val Asp Met Tyr Glu Glu Ile His Arg Lys Leu Ser Glu  
100 105 110

Ala Thr Arg Glu Leu Gln Asn Ala Pro Asp Ala Ile Pro Glu Ser Gly  
115 120 125

Val Glu Pro Pro Ala Leu Asp Thr Ala Trp Val Glu Ala Thr Arg Lys  
130 135 140

Lys Ala Leu Leu Lys Leu Glu Lys Leu Asp Thr Asp Leu Lys Asn Tyr  
145 150 155 160

Lys Gly Asn Ser Ile Lys Glu Ser Ile Arg Arg Gly His Asp Asp Leu  
165 170 175

Gly Asp His Tyr Leu Asp Cys Gly Asp Leu Ser Asn Ala Leu Lys Cys  
180 185 190

Tyr Ser Arg Ala Arg Asp Tyr Cys Thr Ser Ala Lys His Val Ile Asn

195                      200                      205  
 Met Cys Leu Asn Val Ile Lys Val Ser Val Tyr Leu Gln Asn Trp Ser  
     210                      215                      220  
 His Val Leu Ser Tyr Val Ser Lys Ala Glu Ser Thr Pro Glu Ile Ala  
     225                      230                      235                      240  
 Glu Gln Arg Gly Glu Arg Asp Ser Gln Thr Gln Ala Ile Leu Thr Lys  
                     245                      250                      255  
 Leu Lys Cys Ala Ala Xaa Trp Gln Ser Trp Pro Pro Gly Ser Thr Ser  
                     260                      265                      270  
 Arg Leu Pro Ser Ala Ser Cys Trp Leu Pro Leu Ile Thr Val Thr Ser  
     275                      280                      285  
 Leu Ser Cys Cys Pro Pro Ala Thr Trp Pro Ser Thr Val Ala Cys Ala  
     290                      295                      300  
 Pro Trp Leu Pro Leu Thr Gly Arg Ser Cys Ser Ala Met Ser Ser Pro  
     305                      310                      315                      320  
 Ala Ala Pro Ser Ser Cys Ser Trp Ser Trp Ser His Arg Ser Glu Thr  
                     325                      330                      335  
 Ser Ser Ser Asn Ser Thr Ser Pro Ser Thr Pro His Val Ser Arg Cys  
                     340                      345                      350  
 Trp Thr Arg  
     355

&lt;210&gt; 1663

&lt;211&gt; 74

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1663

Leu Ser His Leu Ser Leu Leu Asn Ser Trp Asp Tyr Arg Cys Met Leu  
     1                      5                      10                      15

Pro Cys Leu Ala Thr Phe Cys Val Phe Ser Arg Asp Arg Val Ser Pro  
                     20                      25                      30

Cys Trp Ser Gly Trp Ser Arg Thr Pro Asp Leu Lys Trp Ser Val Trp  
                     35                      40                      45

Leu Gly Leu Pro Arg Cys Trp Asp Tyr Arg Cys Glu Pro Leu His Leu  
     50                      55                      60

Ala Tyr Ile Gly Phe Phe Leu Lys Pro Ile  
65 70

<210> 1664  
<211> 485  
<212> PRT  
<213> Homo sapiens

<400> 1664  
Pro Gly Ser Ile Leu Arg Glu Thr Gly Leu Gly Cys Asp Ala Ala Ala  
1 5 10 15

Gly Val Arg Met Ser Tyr Pro Gly Tyr Pro Pro Thr Gly Tyr Pro Pro  
20 25 30

Phe Pro Gly Tyr Pro Pro Ala Gly Gln Glu Ser Ser Phe Pro Pro Ser  
35 40 45

Gly Gln Tyr Pro Tyr Pro Ser Gly Phe Pro Pro Met Gly Gly Gly Ala  
50 55 60

Tyr Pro Gln Val Pro Ser Ser Gly Tyr Pro Gly Ala Gly Gly Tyr Pro  
65 70 75 80

Ala Pro Gly Gly Tyr Pro Ala Pro Gly Gly Tyr Pro Gly Ala Pro Gln  
85 90 95

Pro Gly Gly Ala Pro Ser Tyr Pro Gly Val Pro Pro Gly Gln Gly Phe  
100 105 110

Gly Val Pro Pro Gly Gly Ala Gly Phe Ser Gly Tyr Pro Gln Pro Pro  
115 120 125

Ser Gln Ser Tyr Gly Gly Gly Pro Ala Gln Val Pro Leu Pro Gly Gly  
130 135 140

Phe Pro Gly Gly Gln Met Pro Ser Gln Tyr Pro Gly Gly Gln Pro Thr  
145 150 155 160

Tyr Pro Ser Gln Pro Ala Thr Val Thr Gln Val Thr Gln Gly Thr Ile  
165 170 175

Arg Pro Ala Ala Asn Phe Asp Ala Ile Arg Asp Ala Glu Ile Leu Arg  
180 185 190

Lys Ala Met Lys Gly Phe Gly Thr Asp Glu Gln Ala Ile Val Asp Val  
195 200 205

Val Ala Asn Arg Ser Asn Asp Gln Arg Gln Lys Ile Lys Ala Ala Phe  
210 215 220

Lys Thr Ser Tyr Gly Lys Asp Leu Ile Lys Asp Leu Lys Ser Glu Leu  
225 230 235 240

Ser Gly Asn Met Glu Glu Leu Ile Leu Ala Leu Phe Met Pro Pro Thr  
245 250 255

Tyr Tyr Asp Ala Trp Ser Leu Arg Lys Ala Met Gln Gly Ala Gly Thr  
260 265 270

Gln Glu Arg Val Leu Ile Glu Ile Leu Cys Thr Arg Thr Asn Gln Glu  
275 280 285

Ile Arg Glu Ile Val Arg Cys Tyr Gln Ser Glu Phe Gly Arg Asp Leu  
290 295 300

Glu Lys Asp Ile Arg Ser Asp Thr Ser Gly His Phe Glu Arg Leu Leu  
305 310 315 320

Val Ser Met Cys Gln Gly Asn Arg Asp Glu Asn Gln Ser Ile Asn His  
325 330 335

Gln Met Ala Gln Glu Asp Ala Gln Arg Leu Tyr Gln Ala Gly Glu Gly  
340 345 350

Arg Leu Gly Thr Asp Glu Ser Cys Phe Asn Met Ile Leu Ala Thr Arg  
355 360 365

Ser Phe Pro Gln Leu Arg Ala Thr Met Glu Ala Tyr Ser Arg Met Ala  
370 375 380

Asn Arg Asp Leu Leu Ser Ser Val Ser Arg Glu Phe Ser Gly Tyr Val  
385 390 395 400

Glu Ser Gly Leu Lys Thr Ile Leu Gln Cys Ala Leu Asn Arg Pro Ala  
405 410 415

Phe Phe Ala Glu Arg Leu Tyr Tyr Ala Met Lys Gly Ala Gly Thr Asp  
420 425 430

Asp Ser Thr Leu Val Arg Ile Val Val Thr Arg Ser Glu Ile Asp Leu  
435 440 445

Val Gln Ile Lys Gln Met Phe Ala Gln Met Tyr Gln Lys Thr Leu Gly  
450 455 460

Thr Met Ile Ala Gly Asp Thr Ser Gly Asp Tyr Arg Arg Leu Leu Leu  
465 470 475 480

Ala Ile Val Gly Gln  
485

<210> 1665

<211> 235

<212> PRT

<213> Homo sapiens

<400> 1665

Arg Asn Val Ile Glu Ala Cys Leu Gln Thr Gly Thr Arg Phe Leu Val  
1 5 10 15

Tyr Thr Ser Ser Met Glu Val Val Gly Pro Asn Thr Lys Gly His Pro  
20 25 30

Phe Tyr Arg Gly Asn Glu Asp Thr Pro Tyr Glu Ala Val His Arg His  
35 40 45

Pro Tyr Pro Cys Ser Lys Ala Leu Ala Glu Trp Leu Val Leu Glu Ala  
50 55 60

Asn Gly Arg Lys Val Arg Gly Gly Leu Pro Leu Val Thr Cys Ala Leu  
65 70 75 80

Arg Pro Thr Gly Ile Tyr Gly Glu Gly His Gln Ile Met Arg Asp Phe  
85 90 95

Tyr Arg Gln Gly Leu Arg Leu Gly Gly Trp Leu Phe Arg Ala Ile Pro  
100 105 110

Ala Ser Val Glu His Gly Arg Val Tyr Val Gly Asn Val Ala Trp Met  
115 120 125

His Val Leu Ala Ala Arg Glu Leu Glu Gln Arg Ala Ala Leu Met Gly  
130 135 140

Gly Gln Val Tyr Phe Cys Tyr Asp Gly Ser Pro Tyr Arg Ser Tyr Glu  
145 150 155 160

Asp Phe Asn Met Glu Phe Leu Gly Pro Leu Arg Thr Ala Ala Gly Gly  
165 170 175

Arg Pro Pro Ile Ala Ala Leu Leu Ala Ala Gly Val Pro Gly Cys Pro  
180 185 190

Gln Cys Pro Ala Ala Val Ala Ala Ala Thr Gly Ala Leu Arg Thr  
195 200 205

Pro Ala Glu Pro Leu His Ala Gly Arg Gly Gln His His Leu His Arg

210

215

220

Gln His Arg Gln Gly Ser Ala Pro Phe Arg Leu  
225 230 235

&lt;210&gt; 1666

&lt;211&gt; 292

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (85)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1666

Ala Ala Leu Glu Gly Pro Glu Glu Glu Leu Glu Gly Ser Ser Glu Pro  
1 5 10 15

Glu Glu Trp Cys Pro Pro Met Pro Glu Arg Ser His Leu Thr Glu Pro  
20 25 30

Ser Ser Ser Gly Gly Cys Leu Val Thr Pro Ser Arg Arg Glu Thr Pro  
35 40 45

Ser Pro Thr Pro Ser Tyr Gly Gln Gln Ser Thr Ala Thr Leu Thr Pro  
50 55 60

Ser Pro Pro Asp Pro Pro Gln Pro Pro Thr Asp Met Pro His Leu His  
65 70 75 80

Gln Met Pro Arg Xaa Val Pro Leu Gly Pro Ser Ser Pro Leu Ser Val  
85 90 95

Ser Gln Pro Met Leu Gly Ile Arg Glu Ala Arg Pro Ala Gly Leu Gly  
100 105 110

Ala Gly Pro Ala Ala Ser Pro His Leu Ser Pro Ser Pro Ala Pro Ser  
115 120 125

Thr Ala Ser Ser Ala Pro Gly Arg Thr Trp Gln Gly Asn Gly Glu Met  
130 135 140

Thr Pro Pro Leu Gln Gly Pro Arg Ala Arg Phe Arg Lys Lys Pro Lys  
145 150 155 160

Ala Leu Pro Tyr Arg Arg Glu Asn Ser Pro Gly Asp Leu Pro Pro Pro  
165 170 175

Pro Leu Pro Pro Pro Glu Glu Glu Ala Ser Trp Ala Leu Glu Leu Arg  
 180 185 190

Ala Ala Gly Ser Met Ser Ser Leu Glu Arg Glu Arg Ser Gly Glu Arg  
 195 200 205

Lys Ala Val Gln Ala Val Pro Leu Ala Ala Gln Arg Val Leu His Pro  
 210 215 220

Asp Glu Glu Ala Trp Leu Pro Tyr Ser Arg Pro Ser Phe Leu Ser Arg  
 225 230 235 240

Gly Gln Gly Thr Ser Thr Cys Ser Thr Ala Gly Ser Asn Ser Ser Arg  
 245 250 255

Gly Ser Ser Ser Ser Arg Gly Ser Arg Gly Pro Gly Arg Ser Arg Ser  
 260 265 270

Arg Ser Gln Ser Arg Ser Gln Ser Gln Arg Pro Gly Gln Lys Arg Arg  
 275 280 285

Glu Glu Pro Arg  
 290

&lt;210&gt; 1667

&lt;211&gt; 521

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1667

Lys Trp Lys Ser Gly Lys Asp Val Asp Ile Ser Leu Leu Val Ser Phe  
 1 5 10 15

Asn Lys Met Lys Lys Leu Thr Thr Asp Gly Lys Leu Ile Ala Arg Ala  
 20 25 30

Leu Arg Ser Ser Ala Val Val Glu Leu Asp Leu Glu Gly Thr Arg Ile  
 35 40 45

Arg Arg Lys Lys Pro Leu Gly Glu Arg Pro Lys Asp Glu Asp Glu Arg  
 50 55 60

Thr Val Tyr Val Glu Leu Leu Pro Lys Asn Val Asn His Ser Trp Ile  
 65 70 75 80

Glu Arg Val Phe Gly Lys Cys Gly Asn Val Val Tyr Ile Ser Ile Pro  
 85 90 95

His Tyr Lys Ser Thr Gly Asp Pro Lys Gly Phe Ala Phe Val Glu Phe

100	105	110
Glu Thr Lys Glu Gln Ala Ala Lys Ala Ile Glu Phe Leu Asn Asn Pro 115 120 125		
Pro Glu Glu Ala Pro Arg Lys Pro Gly Ile Phe Pro Lys Thr Val Lys 130 135 140		
Asn Lys Pro Ile Pro Ala Leu Arg Val Val Glu Glu Lys Lys Lys Lys 145 150 155 160		
Lys Lys Lys Lys Gly Arg Met Lys Lys Glu Asp Asn Ile Gln Ala Lys 165 170 175		
Glu Glu Asn Met Asp Thr Ser Asn Thr Ser Ile Ser Lys Met Lys Arg 180 185 190		
Ser Arg Pro Thr Ser Glu Gly Ser Asp Ile Glu Ser Thr Glu Pro Gln 195 200 205		
Lys Gln Cys Ser Lys Lys Lys Lys Lys Arg Asp Arg Val Glu Ala Ser 210 215 220		
Ser Leu Pro Glu Val Arg Thr Gly Lys Arg Lys Arg Ser Ser Ser Glu 225 230 235 240		
Asp Ala Glu Ser Leu Ala Pro Arg Ser Lys Val Lys Lys Ile Ile Gln 245 250 255		
Lys Asp Ile Ile Lys Glu Ala Ser Glu Ala Ser Lys Glu Asn Arg Asp 260 265 270		
Ile Glu Ile Ser Thr Glu Glu Glu Lys Asp Thr Gly Asp Leu Lys Asp 275 280 285		
Ser Ser Leu Leu Lys Thr Lys Arg Lys His Lys Lys Lys His Lys Glu 290 295 300		
Arg His Lys Met Gly Glu Glu Val Ile Pro Leu Arg Val Leu Ser Lys 305 310 315 320		
Ser Glu Trp Met Asp Leu Lys Lys Glu Tyr Leu Ala Leu Gln Lys Ala 325 330 335		
Ser Met Ala Ser Leu Lys Lys Thr Ile Ser Gln Ile Lys Ser Glu Ser 340 345 350		
Glu Met Glu Thr Asp Ser Gly Val Pro Gln Asn Thr Gly Met Lys Asn 355 360 365		
Glu Lys Thr Ala Asn Arg Glu Glu Cys Arg Thr Gln Glu Lys Val Asn		



370

375

380

Ala Thr Gly Pro Gln Phe Val Ser Gly Val Ile Val Lys Ile Ile Ser  
385 390 395 400

Thr Glu Pro Leu Pro Gly Arg Lys Gln Val Arg Asp Thr Leu Ala Ala  
405 410 415

Ile Ser Glu Val Leu Tyr Val Asp Leu Leu Glu Gly Asp Thr Glu Cys  
420 425 430

His Ala Arg Phe Lys Thr Pro Glu Asp Ala Gln Ala Val Ile Asn Ala  
435 440 445

Tyr Thr Glu Ile Asn Lys Lys His Cys Trp Lys Leu Glu Ile Leu Ser  
450 455 460

Gly Asp His Glu Gln Arg Tyr Trp Gln Lys Ile Leu Val Asp Arg Gln  
465 470 475 480

Ala Lys Leu Asn Gln Pro Arg Glu Lys Lys Arg Gly Thr Glu Lys Leu  
485 490 495

Ile Thr Lys Ala Glu Lys Ile Arg Leu Ala Lys Thr Gln Gln Ala Ser  
500 505 510

Lys His Ile Arg Phe Ser Glu Tyr Asp  
515 520

&lt;210&gt; 1668

&lt;211&gt; 306

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1668

Phe Pro Glu Leu Ser Gly Arg Arg Ala Lys Ala Lys Gly Val Trp Arg  
1 5 10 15

Ala Ala Pro Gly Ala Asn Met Pro Arg Tyr Ala Gln Leu Val Met Gly  
20 25 30

Pro Ala Gly Ser Gly Lys Ser Thr Tyr Cys Ala Thr Met Val Gln His  
35 40 45

Cys Glu Ala Leu Asn Arg Ser Val Gln Val Val Asn Leu Asp Pro Ala  
50 55 60

Ala Glu His Phe Asn Tyr Ser Val Met Ala Asp Ile Arg Glu Leu Ile  
65 70 75 80

Glu Val Asp Asp Val Met Glu Asp Asp Ser Leu Arg Phe Gly Pro Asn  
85 90 95

Gly Gly Leu Val Phe Cys Met Glu Tyr Phe Ala Asn Asn Phe Asp Trp  
100 105 110

Leu Glu Asn Cys Leu Gly His Val Glu Asp Asp Tyr Ile Leu Phe Asp  
115 120 125

Cys Pro Gly Gln Ile Glu Leu Tyr Thr His Leu Pro Val Met Lys Gln  
130 135 140

Leu Val Gln Gln Leu Glu Gln Trp Glu Phe Arg Val Cys Gly Val Phe  
145 150 155 160

Leu Val Asp Ser Gln Phe Met Val Glu Ser Phe Lys Phe Ile Ser Gly  
165 170 175

Ile Leu Ala Ala Leu Ser Ala Met Ile Ser Leu Glu Ile Pro Gln Val  
180 185 190

Asn Ile Met Thr Lys Met Asp Leu Leu Ser Lys Lys Ala Lys Lys Glu  
195 200 205

Ile Glu Lys Phe Leu Asp Pro Asp Met Tyr Ser Leu Leu Glu Asp Ser  
210 215 220

Thr Ser Asp Leu Arg Ser Lys Lys Phe Lys Lys Leu Thr Lys Ala Ile  
225 230 235 240

Cys Gly Leu Ile Asp Asp Tyr Ser Met Val Arg Phe Leu Pro Tyr Asp  
245 250 255

Gln Ser Asp Glu Glu Ser Met Asn Ile Val Leu Gln His Ile Asp Phe  
260 265 270

Ala Ile Gln Tyr Gly Glu Asp Leu Glu Phe Lys Glu Pro Lys Glu Arg  
275 280 285

Glu Asp Glu Ser Ser Ser Met Phe Asp Glu Tyr Phe Gln Glu Cys Gln  
290 295 300

Asp Glu  
305

&lt;210&gt; 1669

&lt;211&gt; 412

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1669

Glu Thr Glu Asp Val Met Glu Leu Leu Glu Glu Asp Leu Thr Cys Pro  
1 5 10 15

Ile Cys Cys Ser Leu Phe Asp Asp Pro Arg Val Leu Pro Cys Ser His  
20 25 30

Asn Phe Cys Lys Lys Cys Leu Glu Gly Ile Leu Glu Gly Ser Val Arg  
35 40 45

Asn Ser Leu Trp Arg Pro Ala Pro Phe Lys Cys Pro Thr Cys Arg Lys  
50 55 60

Glu Thr Ser Ala Thr Gly Ile Asn Ser Leu Gln Val Asn Tyr Ser Leu  
65 70 75 80

Lys Gly Ile Val Glu Lys Tyr Asn Lys Ile Lys Ile Ser Pro Lys Met  
85 90 95

Pro Val Cys Lys Gly His Leu Gly Gln Pro Leu Asn Ile Phe Cys Leu  
100 105 110

Thr Asp Met Gln Leu Ile Cys Gly Ile Cys Ala Thr Arg Gly Glu His  
115 120 125

Thr Lys His Val Phe Cys Ser Ile Glu Asp Ala Tyr Ala Gln Glu Arg  
130 135 140

Asp Ala Phe Glu Ser Leu Phe Gln Ser Phe Glu Thr Trp Arg Arg Gly  
145 150 155 160

Asp Ala Leu Ser Arg Leu Asp Thr Leu Glu Thr Ser Lys Arg Lys Ser  
165 170 175

Leu Gln Leu Leu Thr Lys Asp Ser Asp Lys Val Lys Glu Phe Phe Glu  
180 185 190

Lys Leu Gln His Thr Leu Asp Gln Lys Lys Asn Glu Ile Leu Ser Asp  
195 200 205

Phe Glu Thr Met Lys Leu Ala Val Met Gln Ala Tyr Asp Pro Glu Ile  
210 215 220

Asn Lys Leu Asn Thr Ile Leu Gln Glu Gln Arg Met Ala Phe Asn Ile  
225 230 235 240

Ala Glu Ala Phe Lys Asp Val Ser Glu Pro Ile Val Phe Leu Gln Gln  
245 250 255

Met Gln Glu Phe Arg Glu Lys Ile Lys Val Ile Lys Glu Thr Pro Leu  
260 265 270

Pro Pro Ser Asn Leu Pro Ala Ser Pro Leu Met Lys Asn Phe Asp Thr  
275 280 285

Ser Gln Trp Glu Asp Ile Lys Leu Val Asp Val Asp Lys Leu Ser Leu  
290 295 300

Pro Gln Asp Thr Gly Thr Phe Ile Ser Lys Ile Pro Trp Ser Phe Tyr  
305 310 315 320

Lys Leu Phe Leu Leu Ile Leu Leu Leu Gly Leu Val Ile Val Phe Gly  
325 330 335

Pro Thr Met Phe Leu Glu Trp Ser Leu Phe Asp Asp Leu Ala Thr Trp  
340 345 350

Lys Gly Cys Leu Ser Asn Phe Ser Ser Tyr Leu Thr Lys Thr Ala Asp  
355 360 365

Phe Ile Glu Gln Ser Val Phe Tyr Trp Glu Gln Val Thr Asp Gly Phe  
370 375 380

Phe Ile Phe Asn Glu Arg Phe Lys Asn Phe Thr Leu Val Val Leu Asn  
385 390 395 400

Asn Val Ala Glu Phe Val Cys Lys Tyr Lys Leu Leu  
405 410

<210> 1670

<211> 89

<212> PRT

<213> Homo sapiens

<400> 1670

Pro Glu Glu Ala Leu Glu Pro Glu Ala Met Ala His Tyr Pro Thr Arg  
1 5 10 15

Leu Lys Thr Arg Lys Thr Tyr Ser Trp Val Gly Arg Pro Leu Leu Asp  
20 25 30

Arg Lys Leu His Tyr Gln Thr Tyr Arg Glu Met Cys Val Lys Thr Glu  
35 40 45

Gly Cys Ser Thr Glu Ile His Ile Gln Ile Gly Gln Phe Val Leu Ile  
50 55 60

Glu Gly Asp Asp Asp Glu Asn Pro Tyr Val Ala Lys Leu Leu Glu Leu

65

70

75

80

Phe Glu Asp Asp Ser Asp Pro Pro Pro

85

&lt;210&gt; 1671

&lt;211&gt; 218

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1671

Asp Pro Arg Val Arg Ile Glu Ile Ile Thr Asp Arg Gln Ser Gly Lys  
1 5 10 15

Lys Arg Gly Phe Gly Phe Val Thr Phe Asp Asp His Asp Pro Val Asp  
20 25 30

Lys Ile Val Leu Gln Lys Tyr His Thr Ile Asn Gly His Asn Ala Glu  
35 40 45

Val Arg Lys Ala Leu Ser Arg Gln Glu Met Gln Glu Val Gln Ser Ser  
50 55 60

Arg Ser Gly Arg Gly Gly Asn Phe Gly Phe Gly Asp Ser Arg Gly Gly  
65 70 75 80

Gly Gly Asn Phe Gly Pro Gly Pro Gly Ser Asn Phe Arg Gly Gly Ser  
85 90 95

Asp Gly Tyr Gly Ser Gly Arg Gly Phe Gly Asp Gly Tyr Asn Gly Tyr  
100 105 110

Gly Gly Gly Pro Gly Gly Gly Asn Phe Gly Gly Ser Pro Gly Tyr Gly  
115 120 125

Gly Gly Arg Gly Gly Tyr Gly Gly Gly Gly Pro Gly Tyr Gly Asn Gln  
130 135 140

Gly Gly Gly Tyr Gly Gly Gly Tyr Asp Asn Tyr Gly Gly Gly Asn Tyr  
145 150 155 160

Gly Ser Gly Asn Tyr Asn Asp Phe Gly Asn Tyr Asn Gln Gln Pro Ser  
165 170 175

Asn Tyr Gly Pro Met Lys Ser Gly Asn Phe Gly Gly Ser Arg Asn Met  
180 185 190

Gly Gly Pro Tyr Gly Gly Gly Asn Tyr Gly Pro Gly Gly Ser Gly Gly  
195 200 205

Ser Gly Gly Tyr Gly Gly Arg Ser Arg Tyr  
 210 215

<210> 1672

<211> 575

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (186)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (555)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1672

Glu Glu Leu Arg Val Arg Glu His Val Thr Gly Gly Ile Cys Gly Gly  
 1 5 10 15

Ser Gln Met Met Val Val Leu Leu Gly Ala Thr Thr Leu Val Leu Val  
 20 25 30

Ala Val Ala Pro Trp Val Leu Ser Ala Ala Ala Gly Gly Lys Asn Leu  
 35 40 45

Lys Ser Pro Gln Lys Val Glu Val Asp Ile Ile Asp Asp Asn Phe Ile  
 50 55 60

Leu Arg Trp Asn Arg Ser Asp Glu Ser Val Gly Asn Val Thr Phe Ser  
 65 70 75 80

Phe Asp Tyr Gln Lys Thr Gly Met Asp Asn Trp Ile Lys Leu Ser Gly  
 85 90 95

Cys Gln Asn Ile Thr Ser Thr Lys Cys Asn Phe Ser Ser Leu Lys Leu  
 100 105 110

Asn Val Tyr Glu Glu Ile Lys Leu Arg Ile Arg Ala Glu Lys Glu Asn  
 115 120 125

Thr Ser Ser Trp Tyr Glu Val Asp Ser Phe Thr Pro Phe Arg Lys Ala  
 130 135 140

Gln Ile Gly Pro Pro Glu Val His Leu Glu Ala Glu Asp Lys Ala Ile  
 145 150 155 160

Val Ile His Ile Ser Pro Gly Thr Lys Asp Ser Val Met Trp Ala Leu  
165 170 175

Asp Gly Leu Ser Phe Thr Tyr Ser Leu Xaa Ile Trp Lys Asn Ser Ser  
180 185 190

Gly Val Glu Glu Arg Ile Glu Asn Ile Tyr Ser Arg His Lys Ile Tyr  
195 200 205

Lys Leu Ser Pro Glu Thr Thr Tyr Cys Leu Lys Val Lys Ala Ala Leu  
210 215 220

Leu Thr Ser Trp Lys Ile Gly Val Tyr Ser Pro Val His Cys Ile Lys  
225 230 235 240

Thr Thr Val Glu Asn Glu Leu Pro Pro Pro Glu Asn Ile Glu Val Ser  
245 250 255

Val Gln Asn Gln Asn Tyr Val Leu Lys Trp Asp Tyr Thr Tyr Ala Asn  
260 265 270

Met Thr Phe Gln Val Gln Trp Leu His Ala Phe Leu Lys Arg Asn Pro  
275 280 285

Gly Asn His Leu Tyr Lys Trp Lys Gln Ile Pro Asp Cys Glu Asn Val  
290 295 300

Lys Thr Thr Gln Cys Val Phe Pro Gln Asn Val Phe Gln Lys Gly Ile  
305 310 315 320

Tyr Leu Leu Arg Val Gln Ala Ser Asp Gly Asn Asn Thr Ser Phe Trp  
325 330 335

Ser Glu Glu Ile Lys Phe Asp Thr Glu Ile Gln Ala Phe Leu Leu Pro  
340 345 350

Pro Val Phe Asn Ile Arg Ser Leu Ser Asp Ser Phe His Ile Tyr Ile  
355 360 365

Gly Ala Pro Lys Gln Ser Gly Asn Thr Pro Val Ile Gln Asp Tyr Pro  
370 375 380

Leu Ile Tyr Glu Ile Ile Phe Trp Glu Asn Thr Ser Asn Ala Glu Arg  
385 390 395 400

Lys Ile Ile Glu Lys Lys Thr Asp Val Thr Val Pro Asn Leu Lys Pro  
405 410 415

Leu Thr Val Tyr Cys Val Lys Ala Arg Ala His Thr Met Asp Glu Lys  
420 425 430

Leu Asn Lys Ser Ser Val Phe Ser Asp Ala Val Cys Glu Lys Thr Lys  
 435 440 445

Pro Gly Asn Thr Ser Lys Ile Trp Leu Ile Val Gly Ile Cys Ile Ala  
 450 455 460

Leu Phe Ala Leu Pro Phe Val Ile Tyr Ala Ala Lys Val Phe Leu Arg  
 465 470 475 480

Cys Ile Asn Tyr Val Phe Phe Pro Ser Leu Lys Pro Ser Ser Ser Ile  
 485 490 495

Asp Glu Tyr Phe Ser Glu Gln Pro Leu Lys Asn Leu Leu Leu Ser Thr  
 500 505 510

Ser Glu Glu Gln Ile Glu Lys Cys Phe Ile Ile Glu Asn Ile Ser Thr  
 515 520 525

Ile Ala Thr Val Glu Glu Thr Asn Gln Thr Asp Glu Asp His Lys Lys  
 530 535 540

Tyr Ser Ser Gln Thr Ser Gln Asp Ser Gly Xaa Tyr Ser Asn Glu Asp  
 545 550 555 560

Glu Ser Glu Ser Lys Thr Ser Glu Glu Leu Gln Gln Asp Phe Val  
 565 570 575

<210> 1673

<211> 571

<212> PRT

<213> Homo sapiens

<400> 1673

Asp Ala Trp Glu Leu Ser Arg Gly Gly Pro Phe Glu Arg Ile Ala Leu  
 1 5 10 15

Gln Pro Leu Ile Pro Pro Ala Ser Pro Pro Val Glu Ala Gln Ala Arg  
 20 25 30

Phe Ala Ala Phe Ser Leu Cys Leu Ile Thr Met Ser Thr Asn Glu Asn  
 35 40 45

Ala Asn Thr Pro Ala Ala Arg Leu His Arg Phe Lys Asn Lys Gly Lys  
 50 55 60

Asp Ser Thr Glu Met Arg Arg Arg Arg Ile Glu Val Asn Val Glu Leu  
 65 70 75 80



Arg Lys Ala Lys Lys Asp Asp Gln Met Leu Lys Arg Arg Asn Val Ser  
85 90 95

Ser Phe Pro Asp Asp Ala Thr Ser Pro Leu Gln Glu Asn Arg Asn Asn  
100 105 110

Gln Gly Thr Val Asn Trp Ser Val Asp Asp Ile Val Lys Gly Ile Asn  
115 120 125

Ser Ser Asn Val Glu Asn Gln Leu Gln Ala Thr Gln Ala Ala Arg Lys  
130 135 140

Leu Leu Ser Arg Glu Lys Gln Pro Pro Ile Asp Asn Ile Ile Arg Ala  
145 150 155 160

Gly Leu Ile Pro Lys Phe Val Ser Phe Leu Gly Arg Thr Asp Cys Ser  
165 170 175

Pro Ile Gln Phe Glu Ser Ala Trp Ala Leu Thr Asn Ile Ala Ser Gly  
180 185 190

Thr Ser Glu Gln Thr Lys Ala Val Val Asp Gly Gly Ala Ile Pro Ala  
195 200 205

Phe Ile Ser Leu Leu Ala Ser Pro His Ala His Ile Ser Glu Gln Ala  
210 215 220

Val Trp Ala Leu Gly Asn Ile Ala Gly Asp Gly Ser Val Phe Arg Asp  
225 230 235 240

Leu Val Ile Lys Tyr Gly Ala Val Asp Pro Leu Leu Ala Leu Leu Ala  
245 250 255

Val Pro Asp Met Ser Ser Leu Ala Cys Gly Tyr Leu Arg Asn Leu Thr  
260 265 270

Trp Thr Leu Ser Asn Leu Cys Arg Asn Lys Asn Pro Ala Pro Pro Ile  
275 280 285

Asp Ala Val Glu Gln Ile Leu Pro Thr Leu Val Arg Leu Leu His His  
290 295 300

Asp Asp Pro Glu Val Leu Ala Asp Thr Cys Trp Ala Ile Ser Tyr Leu  
305 310 315 320

Thr Asp Gly Pro Asn Glu Arg Ile Gly Met Val Val Lys Thr Gly Val  
325 330 335

Val Pro Gln Leu Val Lys Leu Leu Gly Ala Ser Glu Leu Pro Ile Val  
340 345 350

Thr Pro Ala Leu Arg Ala Ile Gly Asn Ile Val Thr Gly Thr Asp Glu  
 355 360 365  
 Gln Thr Gln Val Val Ile Asp Ala Gly Ala Leu Ala Val Phe Pro Ser  
 370 375 380  
 Leu Leu Thr Asn Pro Lys Thr Asn Ile Gln Lys Glu Ala Thr Trp Thr  
 385 390 395 400  
 Met Ser Asn Ile Thr Ala Gly Arg Gln Asp Gln Ile Gln Gln Val Val  
 405 410 415  
 Asn His Gly Leu Val Pro Phe Leu Val Ser Val Leu Ser Lys Ala Asp  
 420 425 430  
 Phe Lys Thr Gln Lys Glu Ala Val Trp Ala Val Thr Asn Tyr Thr Ser  
 435 440 445  
 Gly Gly Thr Val Glu Gln Ile Val Tyr Leu Val His Cys Gly Ile Ile  
 450 455 460  
 Glu Pro Leu Met Asn Leu Leu Thr Ala Lys Asp Thr Lys Ile Ile Leu  
 465 470 475 480  
 Val Ile Leu Asp Ala Ile Ser Asn Ile Phe Gln Ala Ala Glu Lys Leu  
 485 490 495  
 Gly Glu Thr Glu Lys Leu Ser Ile Met Ile Glu Glu Cys Gly Gly Leu  
 500 505 510  
 Asp Lys Ile Glu Ala Leu Gln Asn His Glu Asn Glu Ser Val Tyr Lys  
 515 520 525  
 Ala Ser Leu Ser Leu Ile Glu Lys Tyr Phe Ser Val Glu Glu Glu Glu  
 530 535 540  
 Asp Gln Asn Val Val Pro Glu Thr Thr Ser Glu Gly Tyr Thr Phe Gln  
 545 550 555 560  
 Val Gln Asp Gly Ala Pro Gly Thr Phe Asn Phe  
 565 570

&lt;210&gt; 1674

&lt;211&gt; 375

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

<222> (338)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (340)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (356)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (372)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1674

Ser Glu Pro Leu Gly Arg Phe Leu Leu Phe Arg Arg Leu His Ser Val  
1 5 10 15

Pro Arg Gly Ser Ala Leu Cys Ala Met Asp Gly Ile Val Pro Asp Ile  
20 25 30

Ala Val Gly Thr Lys Arg Gly Ser Asp Glu Leu Phe Ser Thr Cys Val  
35 40 45

Thr Asn Gly Pro Phe Ile Met Ser Ser Asn Ser Ala Ser Ala Ala Asn  
50 55 60

Gly Asn Asp Ser Lys Lys Phe Lys Gly Asp Ser Arg Ser Ala Gly Val  
65 70 75 80

Pro Ser Arg Val Ile His Ile Arg Lys Leu Pro Ile Asp Val Thr Glu  
85 90 95

Gly Glu Val Ile Ser Leu Gly Leu Pro Phe Gly Lys Val Thr Asn Leu  
100 105 110

Leu Met Leu Lys Gly Lys Asn Gln Ala Phe Ile Glu Met Asn Thr Glu  
115 120 125

Glu Ala Ala Asn Thr Met Val Asn Tyr Tyr Thr Ser Val Thr Pro Val  
130 135 140

Leu Arg Gly Gln Pro Ile Tyr Ile Gln Phe Ser Asn His Lys Glu Leu  
145 150 155 160

Lys Thr Asp Ser Ser Pro Asn Gln Ala Arg Ala Gln Ala Ala Leu Gln  
165 170 175

Ala Val Asn Ser Val Gln Ser Gly Asn Leu Ala Leu Ala Ala Ser Ala  
180 185 190

Ala Ala Val Asp Ala Gly Met Ala Met Ala Gly Gln Ser Pro Val Leu  
195 200 205

Arg Ile Ile Val Glu Asn Leu Phe Tyr Pro Val Thr Leu Asp Val Leu  
210 215 220

His Gln Ile Phe Ser Lys Phe Gly Thr Val Leu Lys Ile Ile Thr Phe  
225 230 235 240

Thr Lys Asn Asn Gln Phe Gln Ala Leu Leu Gln Tyr Ala Asp Pro Val  
245 250 255

Ser Ala Gln His Ala Lys Leu Ser Leu Asp Gly Gln Asn Ile Tyr Asn  
260 265 270

Ala Cys Cys Thr Leu Arg Ile Asp Phe Ser Lys Leu Thr Ser Leu Asn  
275 280 285

Val Lys Tyr Asn Asn Asp Lys Ser Arg Asp Tyr Thr Arg Pro Asp Leu  
290 295 300

Pro Ser Gly Asp Ser Gln Pro Ser Leu Asp Gln Thr Met Ala Ala Ala  
305 310 315 320

Phe Gly Ala Pro Gly Ile Ile Ser Ala Ser Pro Tyr Ala Gly Ala Gly  
325 330 335

Phe Xaa Pro Xaa Phe Ala Ile Pro Gln Ala Ala Gly Phe Pro Phe Arg  
340 345 350

Thr Ser Thr Xaa Pro Trp Pro Leu Ala Arg Thr Glu Pro Arg Trp Leu  
355 360 365

Leu Ile Ala Xaa Gly Thr Ala  
370 375

<210> 1675

<211> 193

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (190)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1675

Pro Arg Phe Ser Val Phe Cys Ser Arg Leu Arg Arg Glu Arg Arg Arg  
1 5 10 15

Arg Trp Arg Leu Arg Arg Glu Thr Ala Arg Arg Ser Glu Arg Ala Leu  
20 25 30

Arg Leu Pro Pro Pro Gln Gln Arg Arg Arg Arg Arg His Arg Ser Ser  
35 40 45

Pro Asp Arg Ser Arg Ser Leu Pro Ser Pro Ala Ile Arg Ala Pro Leu  
50 55 60

Pro Asp Leu Tyr Pro Phe Gly Thr Met Arg Gly Gly Gly Phe Gly Asp  
65 70 75 80

Arg Asp Arg Asp Arg Asp Arg Gly Gly Phe Gly Ala Arg Gly Gly Gly  
85 90 95

Gly Leu Pro Pro Lys Lys Phe Gly Asn Pro Gly Glu Arg Leu Arg Lys  
100 105 110

Lys Lys Trp Asp Leu Ser Glu Leu Pro Lys Phe Glu Lys Asn Phe Tyr  
115 120 125

Val Glu His Pro Glu Val Ala Arg Leu Thr Pro Tyr Glu Val Asp Glu  
130 135 140

Leu Arg Arg Lys Lys Glu Ile Thr Val Arg Gly Gly Asp Val Cys Pro  
145 150 155 160

Lys Pro Val Phe Ala Phe His His Ala Asn Phe Pro Gln Tyr Val Met  
165 170 175

Asp Val Leu Met Asp Ser Arg Thr Leu Gln Asp Asn Ile Xaa Gly Arg  
180 185 190

Leu

&lt;210&gt; 1676

&lt;211&gt; 365

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (220)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1676

His Glu Gly Met Phe Pro Pro Phe Lys Val Arg Cys Ser Gly Leu Asp  
1 5 10 15

Lys Lys Ala Lys Tyr Ile Leu Leu Met Asp Ile Ile Ala Ala Asp Asp  
20 25 30

Cys Arg Tyr Lys Phe His Asn Ser Arg Trp Met Val Ala Gly Xaa Ala  
35 40 45

Asp Pro Glu Met Pro Lys Arg Met Tyr Ile His Pro Asp Ser Pro Ala  
50 55 60

Thr Gly Glu Gln Trp Met Ser Lys Val Val Thr Phe His Lys Leu Lys  
65 70 75 80

Leu Thr Asn Asn Ile Ser Asp Lys His Gly Phe Thr Leu Ala Phe Pro  
85 90 95

Ser Asp His Ala Thr Trp Gln Gly Asn Tyr Ser Phe Gly Thr Gln Thr  
100 105 110

Ile Leu Asn Ser Met His Lys Tyr Gln Pro Arg Phe His Ile Val Arg  
115 120 125

Ala Asn Asp Ile Leu Lys Leu Pro Tyr Ser Thr Phe Arg Thr Tyr Leu  
130 135 140

Phe Pro Glu Thr Glu Phe Ile Ala Val Thr Ala Tyr Gln Asn Asp Lys  
145 150 155 160

Ile Thr Gln Leu Lys Ile Asp Asn Asn Pro Phe Ala Lys Gly Phe Arg  
165 170 175

Asp Thr Gly Asn Gly Arg Arg Glu Lys Arg Lys Gln Leu Thr Leu Gln  
180 185 190

Ser Met Arg Val Phe Asp Glu Arg His Lys Lys Glu Asn Gly Thr Ser  
195 200 205

Asp Glu Ser Ser Ser Glu Gln Ala Ala Phe Asn Xaa Phe Ala Gln Ala  
210 215 220

Ser Ser Pro Ala Ala Ser Thr Val Gly Thr Ser Asn Leu Lys Asp Leu

225                      230                      235                      240  
 Cys Pro Ser Glu Gly Glu Ser Asp Ala Glu Ala Glu Ser Lys Glu Glu  
                          245                      250                      255  
 His Gly Pro Glu Ala Cys Asp Ala Ala Lys Ile Ser Thr Thr Thr Ser  
                          260                      265                      270  
 Glu Glu Pro Cys Arg Asp Lys Gly Ser Pro Ala Val Lys Ala His Leu  
                          275                      280                      285  
 Phe Ala Ala Glu Arg Pro Arg Asp Ser Gly Arg Leu Asp Lys Ala Ser  
                          290                      295                      300  
 Pro Asp Ser Arg His Ser Pro Ala Thr Ile Ser Ser Ser Thr Arg Gly  
 305                      310                      315                      320  
 Leu Gly Ala Glu Glu Arg Arg Ser Pro Val Arg Glu Gly Thr Ala Pro  
                          325                      330                      335  
 Ala Lys Val Glu Glu Ala Arg Ala Leu Pro Gly Lys Glu Ala Phe Ala  
                          340                      345                      350  
 Pro Leu Thr Val Gln Thr Asp Ala Ala Ala Ser Leu Phe  
                          355                      360                      365

<210> 1677

<211> 668

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (71)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1677

His Met Val Leu Arg Pro Phe Leu Leu Arg Arg Ile Lys Ala Asp Val  
 1                      5                      10                      15

Glu Lys Ser Leu Pro Pro Lys Lys Glu Val Lys Ile Tyr Val Gly Leu  
 20                      25                      30

Ser Lys Met Gln Arg Glu Trp Tyr Thr Arg Ile Leu Met Lys Asp Ile

35 40 45

Asp Ile Leu Asn Ser Ala Gly Lys Met Asp Lys Met Arg Leu Leu Asn  
50 55 60

Ile Leu Met Gln Leu Xaa Xaa Cys Cys Asn His Pro Tyr Leu Phe Asp  
65 70 75 80

Gly Ala Glu Pro Gly Pro Pro Tyr Thr Thr Asp Met His Leu Val Thr  
85 90 95

Asn Ser Gly Lys Met Val Val Leu Asp Lys Leu Leu Pro Lys Leu Lys  
100 105 110

Glu Gln Gly Ser Arg Val Leu Ile Phe Ser Gln Met Thr Arg Val Leu  
115 120 125

Asp Ile Leu Glu Asp Tyr Cys Met Trp Arg Asn Tyr Glu Tyr Cys Arg  
130 135 140

Leu Asp Gly Gln Thr Pro His Asp Glu Arg Gln Asp Ser Ile Asn Ala  
145 150 155 160

Tyr Asn Glu Pro Asn Ser Thr Lys Phe Val Phe Met Leu Ser Thr Arg  
165 170 175

Ala Gly Gly Leu Gly Ile Asn Leu Ala Thr Ala Asp Val Val Ile Leu  
180 185 190

Tyr Asp Ser Asp Trp Asn Pro Gln Val Asp Leu Gln Ala Met Asp Arg  
195 200 205

Ala His Arg Ile Gly Gln Thr Lys Thr Val Arg Val Phe Arg Phe Ile  
210 215 220

Thr Asp Asn Thr Val Glu Glu Arg Ile Val Glu Arg Ala Glu Met Lys  
225 230 235 240

Leu Arg Leu Asp Ser Ile Val Ile Gln Gln Gly Arg Leu Val Asp Gln  
245 250 255

Asn Leu Asn Lys Ile Gly Lys Asp Glu Met Leu Gln Met Ile Arg His  
260 265 270

Gly Ala Thr His Val Phe Ala Ser Lys Glu Ser Glu Ile Thr Asp Glu  
275 280 285

Asp Ile Asp Gly Ile Leu Glu Arg Gly Ala Lys Lys Thr Ala Glu Met  
290 295 300

Asn Glu Lys Leu Ser Lys Met Gly Glu Ser Ser Leu Arg Asn Phe Thr



305                      310                      315                      320  
Met Asp Thr Glu Ser Ser Val Tyr Asn Phe Glu Gly Glu Asp Tyr Arg  
                         325                      330                      335  
Glu Lys Gln Lys Ile Ala Phe Thr Glu Trp Ile Glu Pro Pro Lys Arg  
                         340                      345                      350  
Glu Arg Lys Ala Asn Tyr Ala Val Asp Ala Tyr Phe Arg Glu Ala Leu  
                         355                      360                      365  
Arg Val Ser Glu Pro Lys Ala Pro Lys Ala Pro Arg Pro Pro Lys Gln  
                         370                      375                      380  
Pro Asn Val Gln Asp Phe Gln Phe Phe Pro Pro Arg Leu Phe Glu Leu  
385                      390                      395                      400  
Leu Glu Lys Glu Ile Leu Phe Tyr Arg Lys Thr Ile Gly Tyr Lys Val  
                         405                      410                      415  
Pro Arg Asn Pro Glu Leu Pro Asn Ala Ala Gln Ala Gln Lys Glu Glu  
                         420                      425                      430  
Gln Leu Lys Ile Asp Glu Ala Glu Ser Leu Asn Asp Glu Glu Leu Glu  
                         435                      440                      445  
Glu Lys Glu Lys Leu Leu Thr Gln Gly Phe Thr Asn Trp Asn Lys Arg  
                         450                      455                      460  
Asp Phe Asn Gln Phe Ile Lys Ala Asn Glu Lys Trp Gly Arg Asp Asp  
465                      470                      475                      480  
Ile Glu Asn Ile Ala Arg Glu Val Glu Gly Lys Thr Pro Glu Glu Val  
                         485                      490                      495  
Ile Glu Tyr Ser Ala Val Phe Trp Glu Arg Cys Asn Glu Leu Gln Asp  
                         500                      505                      510  
Ile Glu Lys Ile Met Ala Gln Ile Glu Arg Gly Glu Ala Arg Ile Gln  
                         515                      520                      525  
Arg Arg Ile Ser Ile Lys Lys Ala Leu Asp Thr Lys Ile Gly Arg Tyr  
                         530                      535                      540  
Lys Ala Pro Phe His Gln Leu Arg Ile Ser Tyr Gly Thr Asn Lys Gly  
545                      550                      555                      560  
Lys Asn Tyr Thr Glu Glu Glu Asp Arg Phe Leu Ile Cys Met Leu His  
                         565                      570                      575  
Lys Leu Gly Phe Asp Lys Glu Asn Val Tyr Asp Glu Leu Arg Gln Cys

580

585

590

Ile Arg Asn Ser Pro Gln Phe Arg Phe Asp Trp Phe Leu Lys Ser Arg  
 595 600 605

Thr Ala Met Glu Leu Gln Arg Arg Cys Asn Thr Leu Ile Thr Leu Ile  
 610 615 620

Glu Arg Glu Asn Met Glu Leu Glu Glu Lys Glu Lys Ala Glu Lys Lys  
 625 630 635 640

Lys Arg Gly Pro Lys Pro Ser Thr Gln Lys Arg Lys Met Asp Gly Ala  
 645 650 655

Pro Asp Gly Arg Gly Arg Lys Lys Lys Leu Lys Leu  
 660 665

&lt;210&gt; 1678

&lt;211&gt; 237

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (8)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1678

Gly Arg Lys Arg Pro Leu Pro Xaa Lys Gly Trp Ser Arg Ala Gly Ala  
 1 5 10 15

Met Trp Ser Ala Gly Arg Gly Gly Ala Ala Trp Pro Val Leu Leu Gly  
 20 25 30

Leu Leu Leu Ala Leu Leu Val Pro Gly Gly Gly Ala Ala Lys Thr Gly  
 35 40 45

Ala Glu Leu Val Thr Cys Gly Ser Val Leu Lys Leu Leu Asn Thr His  
 50 55 60

His Arg Val Arg Leu His Ser His Asp Ile Lys Tyr Gly Ser Gly Ser  
 65 70 75 80

Gly Gln Gln Ser Val Thr Gly Val Glu Ala Ser Asp Asp Ala Asn Ser  
 85 90 95

Tyr Trp Arg Ile Arg Gly Gly Ser Glu Gly Gly Cys Pro Arg Gly Ser  
 100 105 110

Pro Val Arg Cys Gly Gln Ala Val Arg Leu Thr His Val Leu Thr Gly  
 115 120 125

Lys Asn Leu His Thr His His Phe Pro Ser Pro Leu Ser Asn Asn Gln  
 130 135 140

Glu Val Ser Ala Phe Gly Glu Asp Gly Glu Gly Asp Asp Leu Asp Leu  
 145 150 155 160

Trp Thr Val Arg Cys Ser Gly Gln His Trp Glu Arg Glu Ala Ala Val  
 165 170 175

Arg Phe Gln His Val Gly Thr Ser Val Phe Leu Ser Val Thr Gly Glu  
 180 185 190

Gln Tyr Gly Ser Pro Ile Arg Gly Gln His Glu Val His Gly Met Pro  
 195 200 205

Ser Ala Asn Thr His Asn Thr Trp Lys Ala Met Glu Gly Ile Phe Ile  
 210 215 220

Lys Pro Ser Val Glu Pro Ser Ala Gly His Asp Glu Leu  
 225 230 235

<210> 1679

<211> 168

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (101)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (118)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (144)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1679

Glu His Tyr Ser Cys Phe Leu Phe Gln Asn Pro Thr Pro His Pro Ser  
 1 5 10 15

Cys Asp Ala Met Ser Thr Asn Ile Cys Ser Phe Lys Asp Arg Cys Val

20 25 30

Ser Ile Leu Cys Cys Lys Phe Cys Lys Gln Val Leu Ser Ser Arg Gly  
35 40 45

Met Lys Ala Val Leu Leu Ala Asp Thr Glu Ile Asp Leu Phe Ser Thr  
50 55 60

Asp Ile Pro Pro Thr Asn Ala Val Asp Phe Thr Gly Arg Cys Tyr Phe  
65 70 75 80

Thr Lys Ile Cys Lys Cys Lys Leu Lys Asp Ile Ala Cys Leu Lys Cys  
85 90 95

Gly Asn Ile Val Xaa Tyr His Val Ile Val Pro Cys Ser Ser Cys Leu  
100 105 110

Leu Ser Cys Asn Asn Xaa His Phe Trp Met Phe His Ser Gln Ala Val  
115 120 125

Tyr Asp Ile Asn Arg Leu Asp Ser Thr Gly Val Asn Val Leu Leu Xaa  
130 135 140

Gly Asn Leu Pro Glu Ile Glu Glu Ser Thr Asp Glu Asp Val Leu Asn  
145 150 155 160

Ile Ser Ala Glu Glu Cys Ile Arg  
165

<210> 1680

<211> 519

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (321)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (332)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (333)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (337)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (511)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1680

Lys Thr Glu Arg Lys Gln Glu Gly Arg Ser Leu Leu Phe Glu Phe Val  
 1 5 10 15

Ala Arg Glu Ala Leu Gln Ser Gly Leu Ala Leu Gly Tyr Trp Leu Gly  
 20 25 30

Pro Met Leu Gly Thr Leu Arg Ala Met Glu Gly Glu Asp Val Glu Asp  
 35 40 45

Asp Gln Leu Leu Gln Lys Leu Arg Ala Ser Arg Arg Arg Phe Gln Arg  
 50 55 60

Arg Met Gln Arg Leu Ile Glu Lys Tyr Asn Gln Pro Phe Glu Asp Thr  
 65 70 75 80

Pro Val Val Gln Met Ala Thr Leu Thr Tyr Glu Thr Pro Gln Gly Leu  
 85 90 95

Arg Ile Trp Gly Gly Arg Leu Ile Lys Glu Arg Asn Lys Gly Glu Ile  
 100 105 110

Gln Asp Ser Ser Met Lys Pro Ala Asp Arg Thr Asp Gly Ser Val Gln  
 115 120 125

Ala Ala Ala Trp Gly Pro Glu Leu Pro Ser His Arg Thr Val Leu Gly  
 130 135 140

Ala Asp Ser Lys Ser Gly Glu Val Asp Ala Thr Ser Asp Gln Glu Glu  
 145 150 155 160

Ser Val Ala Trp Ala Leu Ala Pro Ala Val Pro Gln Ser Pro Leu Lys  
 165 170 175

Asn Glu Leu Arg Arg Lys Tyr Leu Thr Gln Val Asp Ile Leu Leu Gln  
 180 185 190

Gly Ala Glu Tyr Phe Glu Cys Ala Gly Asn Arg Ala Gly Arg Asp Val  
 195 200 205

Arg Val Thr Pro Leu Pro Ser Leu Ala Ser Pro Ala Val Pro Ala Pro

210                      215                      220

Gly Tyr Cys Ser Arg Ile Ser Gly Lys Ser Pro Gly Asp Pro Ala Lys  
225                      230                      235                      240

Pro Ala Ser Ser Pro Arg Glu Trp Asp Pro Leu His Pro Ser Ser Thr  
                    245                      250                      255

Asp Met Ala Leu Val Pro Arg Asn Asp Ser Leu Ser Leu Gln Glu Thr  
                    260                      265                      270

Ser Ser Ser Ser Phe Leu Ser Ser Gln Pro Phe Glu Asp Asp Asp Ile  
                    275                      280                      285

Cys Asn Val Thr Ile Ser Asp Leu Tyr Ala Gly Met Leu His Ser Met  
290                      295                      300

Ser Arg Leu Leu Ser Thr Lys Pro Ser Ser Ile Ile Ser Thr Lys Thr  
305                      310                      315                      320

Xaa Ile Met Gln Asn Trp Asn Ser Arg Arg Arg Xaa Xaa Tyr Lys Ser  
                    325                      330                      335

Xaa Met Asn Lys Thr Tyr Cys Lys Gly Ala Arg Arg Ser Gln Arg Ser  
                    340                      345                      350

Ser Lys Glu Asn Phe Ile Pro Cys Ser Glu Pro Val Lys Gly Thr Gly  
                    355                      360                      365

Ala Leu Arg Asp Cys Lys Asn Val Leu Asp Val Ser Cys Arg Lys Thr  
370                      375                      380

Gly Leu Lys Leu Glu Lys Ala Phe Leu Glu Val Asn Arg Pro Gln Ile  
385                      390                      395                      400

His Lys Leu Asp Pro Ser Trp Lys Glu Arg Lys Val Thr Pro Ser Lys  
                    405                      410                      415

Tyr Ser Ser Leu Ile Tyr Phe Asp Ser Ser Ala Thr Tyr Asn Leu Asp  
                    420                      425                      430

Glu Glu Asn Arg Phe Arg Thr Leu Lys Trp Leu Ile Ser Pro Val Lys  
                    435                      440                      445

Ile Val Ser Arg Pro Thr Ile Arg Gln Gly His Gly Glu Asn Arg Gln  
450                      455                      460

Arg Glu Ile Glu Ile Arg Phe Asp Gln Leu His Arg Glu Tyr Cys Leu  
465                      470                      475                      480

Ser Pro Arg Asn Gln Pro Arg Arg Met Cys Leu Pro Asp Ser Trp Ala

485

490

495

Met Asn Met Tyr Arg Gly Gly Pro Ala Lys Ser Trp Trp Pro Xaa Gly  
500 505 510

Leu Lys Thr Arg Lys Leu Ser  
515

&lt;210&gt; 1681

&lt;211&gt; 371

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1681

Val Pro Cys Tyr Arg Arg Val Phe Ile Val Ser Ser Ser Gln Leu Gly  
1 5 10 15

Glu Gln Leu Lys Gln Leu Val Pro Ala Ser Gly Leu Thr Val Met Asp  
20 25 30

Leu Glu Ala Glu Gly Thr Cys Leu Arg Phe Ser Pro Leu Met Thr Ala  
35 40 45

Ala Val Leu Gly Thr Arg Gly Glu Asp Val Asp Gln Leu Val Ala Cys  
50 55 60

Ile Glu Ser Lys Leu Pro Val Leu Cys Cys Thr Leu Gln Leu Arg Glu  
65 70 75 80

Glu Phe Lys Gln Glu Val Glu Ala Thr Ala Gly Leu Leu Tyr Val Asp  
85 90 95

Asp Pro Asn Trp Ser Gly Ile Gly Val Val Arg Tyr Glu His Ala Asn  
100 105 110

Asp Asp Lys Ser Ser Leu Lys Ser Asp Pro Glu Gly Glu Asn Ile His  
115 120 125

Ala Gly Leu Leu Lys Lys Leu Asn Glu Leu Glu Ser Asp Leu Thr Phe  
130 135 140

Lys Ile Gly Pro Glu Tyr Lys Ser Met Lys Ser Cys Leu Tyr Val Gly  
145 150 155 160

Met Ala Ser Asp Asn Val Asp Ala Ala Glu Leu Val Glu Thr Ile Ala  
165 170 175

Ala Thr Ala Arg Glu Ile Glu Glu Asn Ser Arg Leu Leu Glu Asn Met  
180 185 190

Thr Glu Val Val Arg Lys Gly Ile Gln Glu Ala Gln Val Glu Leu Gln  
 195 200 205  
 Lys Ala Ser Glu Glu Arg Leu Leu Glu Glu Gly Val Leu Arg Gln Ile  
 210 215 220  
 Pro Val Val Gly Ser Val Leu Asn Trp Phe Ser Pro Val Gln Ala Leu  
 225 230 235 240  
 Gln Lys Gly Arg Thr Phe Asn Leu Thr Ala Gly Ser Leu Glu Ser Thr  
 245 250 255  
 Glu Pro Ile Tyr Val Tyr Lys Ala Gln Gly Ala Gly Val Thr Leu Pro  
 260 265 270  
 Pro Thr Pro Ser Gly Ser Arg Thr Lys Gln Arg Leu Pro Gly Gln Lys  
 275 280 285  
 Pro Phe Lys Arg Ser Leu Arg Gly Ser Asp Ala Leu Ser Glu Thr Ser  
 290 295 300  
 Ser Val Ser His Ile Glu Asp Leu Glu Lys Val Glu Arg Leu Ser Ser  
 305 310 315 320  
 Gly Pro Glu Gln Ile Thr Leu Glu Ala Ser Ser Thr Glu Gly His Pro  
 325 330 335  
 Gly Ala Pro Ser Pro Gln His Thr Asp Gln Thr Glu Ala Phe Gln Lys  
 340 345 350  
 Gly Val Pro His Pro Glu Asp Asp His Ser Gln Val Glu Gly Pro Glu  
 355 360 365  
 Ser Leu Arg  
 370

&lt;210&gt; 1682

&lt;211&gt; 238

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE



<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (145)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (215)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (228)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1682

Ser Xaa Arg Gly Thr Ser Pro Ser Glu Phe Tyr Phe Met Phe Gln Gln  
1 5 10 15

Val Arg Val Lys Pro Gln Asp Phe Ala Ala Ile Thr Ile Pro Arg Ser  
20 25 30

Arg Gly Glu Ala Arg Val Gly Ala Gly Phe Arg Pro Met Leu Pro Ser  
35 40 45

Gln Gly Ala Pro Gln Arg Pro Leu Ser Thr Phe Ser Pro Ala Pro Lys  
50 55 60

Ala Thr Leu Ile Xaa Asn Ser Ile Gly Ser Leu Ser Lys Leu Arg Pro  
65 70 75 80

Gln Pro Leu Thr Phe Ser Pro Ser Trp Gly Gly Pro Lys Ser Leu Pro  
85 90 95

Val Pro Ala Pro Pro Gly Glu Met Gly Thr Thr Pro Ser Ala Pro Pro  
100 105 110

Gln Arg Asn Arg Arg Lys Ser Val His Arg Val Leu Ala Glu Leu Asp  
115 120 125

Asp Glu Ser Glu Pro Pro Glu Asn Pro Pro Pro Val Leu Met Glu Pro  
130 135 140

Xaa Lys Lys Leu Arg Val Asp Lys Ala Pro Leu Thr Pro Thr Gly Asn  
145 150 155 160

Arg Arg Gly Arg Pro Arg Lys Tyr Pro Val Ser Ala Pro Met Ala Pro  
165 170 175

Pro Ala Val Gly Gly Gly Glu Pro Cys Ala Ala Pro Cys Cys Cys Leu  
180 185 190

Pro Gln Glu Glu Thr Val Ala Trp Val Gln Cys Asp Gly Cys Asp Val  
195 200 205

Trp Phe His Val Ala Cys Xaa Gly Cys Ser Ile Gln Ala Ala Arg Glu  
210 215 220

Ala Asp Phe Xaa Cys Pro Gly Cys Arg Ala Gly Ile Gln Thr  
225 230 235

<210> 1683

<211> 66

<212> PRT

<213> Homo sapiens

<400> 1683

Met Ile Ala Thr Glu Thr Gln Ser Ser Phe Phe Ala Arg Val Phe Trp  
1 5 10 15

Gly Phe Cys Pro Lys Ile Tyr Pro Gly His Ser Ile Thr Ala Val Leu  
20 25 30

Asp Val Tyr Pro Lys Leu Pro His His Pro Ser Thr His Ser Cys Thr  
35 40 45

Phe Ile Tyr Leu Phe Cys Ser Ser Leu Gly Asp Arg Val Arg Leu Arg  
50 55 60

Leu Gly  
65

<210> 1684

<211> 119

<212> PRT

<213> Homo sapiens

<400> 1684

Trp Pro Leu Glu Phe Val Trp Pro Pro Pro Arg Glu Arg Glu Pro Gly  
1 5 10 15

Asn Phe Ser Thr Glu Lys Gly Glu Ala Phe Gly Leu Cys Arg Val Arg  
20 25 30

Val Ser Lys Cys Pro Ala Pro Ala Gly Met Glu Asp Pro Gln Ser Lys

35 40 45  
Glu Pro Ala Gly Glu Ala Val Ala Leu Ala Leu Leu Glu Ser Pro Arg  
50 55 60  
Pro Glu Gly Gly Glu Glu Pro Pro Arg Pro Ser Pro Glu Glu Thr Gln  
65 70 75 80  
Gln Cys Lys Phe Asp Gly Gln Glu Thr Lys Gly Ser Lys Phe Ile Thr  
85 90 95  
Ser Ser Ala Ser Asp Phe Ser Asp Pro Val Tyr Lys Glu Ile Ala Ile  
100 105 110  
Thr Asn Gly Cys Ile Asn Arg  
115

<210> 1685  
<211> 91  
<212> PRT  
<213> Homo sapiens

<400> 1685  
Ile Val Phe Leu Pro Glu Asp Ser Tyr Leu His Val Ser Gln Gly Leu  
1 5 10 15  
Gln Phe Phe Tyr Lys Phe Pro Tyr Pro Lys Phe Arg Ile His Val Lys  
20 25 30  
Tyr Phe Phe Gly Ala Lys Val Leu His Ser Trp Tyr Leu Leu Asp Trp  
35 40 45  
Lys Ser Val Ala Arg Cys Cys Leu Lys Leu Pro Tyr Cys Phe Phe Ile  
50 55 60  
Leu Tyr Leu Ala Leu Trp Leu Leu Asn Phe Leu Phe Leu Phe Glu Val  
65 70 75 80  
Ser Phe Lys Phe Ala Pro Met Leu Asn Tyr Leu  
85 90

<210> 1686  
<211> 141  
<212> PRT  
<213> Homo sapiens

<400> 1686

Glu Ala Val Ala Glu Val Ser Ser Leu Phe Pro Arg Leu Phe Gln Ile  
1 5 10 15

Phe Val Ile Ala Val Val Ser Leu Val Ile Leu Pro Arg Ile Val Ile  
20 25 30

Phe Arg Arg Met Ala Cys Tyr Asn Cys Gly Arg Gly Gly His Ile Ala  
35 40 45

Lys Asp Cys Lys Glu Pro Lys Arg Glu Arg Glu Gln Cys Cys Tyr Asn  
50 55 60

Cys Gly Lys Pro Gly His Leu Ala Arg Asp Cys Asp His Ala Asp Glu  
65 70 75 80

Gln Lys Cys Tyr Ser Cys Gly Glu Phe Gly His Ile Gln Lys Asp Cys  
85 90 95

Thr Lys Val Lys Cys Tyr Arg Cys Gly Glu Thr Gly His Val Ala Ile  
100 105 110

Asn Cys Ser Lys Thr Ser Glu Val Asn Cys Tyr Arg Cys Gly Glu Ser  
115 120 125

Gly His Leu Ala Arg Glu Cys Thr Ile Glu Ala Thr Ala  
130 135 140

<210> 1687

<211> 83

<212> PRT

<213> Homo sapiens

<400> 1687

Phe Trp Ile Pro Trp Trp Arg Lys Ile Lys His Ser Gly Leu Ala Ala  
1 5 10 15

Asn Asp Ala Ser Val Thr Ala Gly Val Phe Met Ser Ser Arg Gly His  
20 25 30

Ser Thr Leu Pro Arg Thr Leu Met Ala Pro Arg Met Ile Ser Glu Gly  
35 40 45

Asp Ile Gly Gly Ile Ala Gln Ile Thr Ser Ser Leu Phe Leu Gly Arg  
50 55 60

Gly Ser Val Ala Ser Asn Arg His Leu Leu Gln Ala Arg Gly His His  
65 70 75 80

Leu His Cys

<210> 1688  
<211> 153  
<212> PRT  
<213> Homo sapiens

<400> 1688  
Arg Arg His Pro Ala Val Val Ala Glu Val Ser Pro Ala Tyr Phe Leu  
1 5 10 15  
Phe Pro Ser Glu Arg Ala Ala Ala Leu Ala Ala Cys Ala Ala Met Ala  
20 25 30  
Lys Ile Lys Ala Arg Asp Leu Arg Gly Lys Lys Lys Glu Glu Leu Leu  
35 40 45  
Lys Gln Leu Asp Asp Leu Lys Val Glu Leu Ser Gln Leu Arg Val Ala  
50 55 60  
Lys Val Thr Gly Gly Ala Ala Ser Lys Leu Ser Lys Ile Arg Val Val  
65 70 75 80  
Arg Lys Ser Ile Ala Arg Val Leu Thr Val Ile Asn Gln Thr Gln Lys  
85 90 95  
Glu Asn Leu Arg Lys Phe Tyr Lys Gly Lys Lys Tyr Lys Pro Leu Asp  
100 105 110  
Leu Arg Pro Lys Lys Thr Arg Ala Met Arg Arg Arg Leu Asn Lys His  
115 120 125  
Glu Glu Asn Leu Lys Thr Lys Lys Gln Gln Arg Lys Glu Arg Leu Tyr  
130 135 140  
Pro Leu Arg Lys Tyr Ala Val Lys Ala  
145 150

<210> 1689  
<211> 130  
<212> PRT  
<213> Homo sapiens

<400> 1689  
Gly Gly Gly Asp Ala Glu Met Gly Ala Ala Ala Ala Glu Ala Asp Arg  
1 5 10 15

Thr Leu Phe Val Gly Asn Leu Glu Thr Lys Val Thr Glu Glu Leu Leu  
                   20                  25                  30  
 Phe Glu Leu Phe His Gln Ala Gly Pro Val Ile Lys Val Lys Ile Pro  
           35                  40                  45  
 Lys Asp Lys Asp Gly Lys Pro Lys Gln Phe Ala Phe Val Asn Phe Lys  
           50                  55                  60  
 His Glu Val Ser Val Pro Tyr Ala Met Asn Leu Leu Asn Gly Ile Lys  
           65                  70                  75                  80  
 Leu Tyr Gly Arg Pro Ile Lys Ile Gln Phe Arg Ser Gly Ser Ser His  
                   85                  90                  95  
 Ala Pro Gln Asp Val Ser Leu Ser Tyr Pro Gln His His Val Gly Asn  
           100                  105                  110  
 Ser Ser Pro Thr Ser Thr Ser Pro Ser Ala Gly Thr Lys Gly Leu Trp  
           115                  120                  125  
 Ile Thr  
           130

&lt;210&gt; 1690

&lt;211&gt; 172

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (110)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1690

Arg Pro Ser Leu Glu Val Leu Phe Thr Val Ile Leu Thr Lys Ile Thr  
   1                  5                  10                  15  
 Tyr Cys Pro Pro Glu Tyr Gln Val Leu Gly Asp Thr Ser Ser Ser Cys  
           20                  25                  30  
 Cys Leu Gln Ser Ser Tyr Gln Glu Ala Arg Cys Thr Gly Phe Leu Trp  
           35                  40                  45  
 Phe Leu Gln Glu Pro Pro Thr Leu Ser Val Phe Trp Pro Arg Ser Gly  
           50                  55                  60  
 Val Asn Pro Leu Val Ser Ala Phe Glu Leu Asp Thr Cys Ala Phe Ser  
           65                  70                  75                  80

Ser Val Asn Thr Ala Leu Phe Gly Gly Val Ser Ser Ser Pro Gln Pro  
85 90 95

Glu Leu Leu Asn Ser Lys Pro Lys Leu Val Ser Ala Glu Xaa Arg Phe  
100 105 110

Gln Asp Ser Pro Val Ser Ile Cys Gly Asp Leu Gln Ile Arg Gln Ser  
115 120 125

Ser Phe Pro Ala Ser Gly Val Leu Ala Pro Glu Pro Ser Leu Arg Leu  
130 135 140

Val Leu Leu Asp Val Leu Ile Ser Asp His Tyr Pro Pro Tyr Ala Ser  
145 150 155 160

His Arg Pro Arg Glu Asn Arg His Gln Asn Leu Gly  
165 170

<210> 1691

<211> 272

<212> PRT

<213> Homo sapiens

<400> 1691

Asn Ser Arg Val His Pro Arg Arg Pro Val Thr Ala Glu Lys Met Ala  
1 5 10 15

Val Leu Ala Pro Leu Ile Ala Leu Val Tyr Ser Val Pro Arg Leu Ser  
20 25 30

Arg Trp Leu Ala Gln Pro Tyr Tyr Leu Leu Ser Ala Leu Leu Ser Ala  
35 40 45

Ala Phe Leu Leu Val Arg Lys Leu Pro Pro Leu Cys His Gly Leu Pro  
50 55 60

Thr Gln Arg Glu Asp Gly Asn Pro Cys Asp Phe Asp Trp Arg Glu Val  
65 70 75 80

Glu Ile Leu Met Phe Leu Ser Ala Ile Val Met Met Lys Asn Arg Arg  
85 90 95

Ser Met Phe Leu Met Thr Cys Lys Pro Pro Leu Tyr Met Gly Pro Glu  
100 105 110

Tyr Ile Lys Tyr Phe Asn Asp Lys Thr Ile Asp Glu Glu Leu Glu Arg  
115 120 125

Asp Lys Arg Val Thr Trp Ile Val Glu Phe Phe Ala Asn Trp Ser Asn  
130 135 140

Asp Cys Gln Ser Phe Ala Pro Ile Tyr Ala Asp Leu Ser Leu Lys Tyr  
145 150 155 160

Asn Cys Thr Gly Leu Asn Phe Gly Lys Val Asp Val Gly Arg Tyr Thr  
165 170 175

Asp Val Ser Thr Arg Tyr Lys Val Ser Thr Ser Pro Leu Thr Lys Gln  
180 185 190

Leu Pro Thr Leu Ile Leu Phe Gln Gly Gly Lys Glu Ala Met Arg Arg  
195 200 205

Pro Gln Ile Asp Lys Lys Gly Arg Ala Val Ser Trp Thr Phe Ser Glu  
210 215 220

Glu Asn Val Ile Arg Glu Phe Asn Leu Asn Glu Leu Tyr Gln Arg Ala  
225 230 235 240

Lys Lys Leu Ser Lys Ala Gly Asp Asn Ile Pro Glu Glu Gln Pro Val  
245 250 255

Ala Ser Thr Pro Thr Thr Val Ser Asp Gly Glu Asn Lys Lys Asp Lys  
260 265 270

<210> 1692

<211> 366

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1692

Gly Lys Arg Thr Gly Arg Ala Xaa Ala Ser Ser Gly Arg Arg Gly Glu  
1 5 10 15

Gly Gly Trp Trp Arg Leu Pro Arg Ser Pro Ser Leu Pro Ala Val Pro  
20 25 30

Thr Pro Gly Thr Met Phe Pro Ala Gly Pro Pro Ser His Ser Leu Leu  
35 40 45



Arg Leu Pro Leu Leu Gln Leu Leu Leu Leu Val Val Gln Ala Val Gly  
50 55 60

Arg Gly Leu Gly Arg Ala Ser Pro Ala Gly Gly Pro Leu Glu Asp Val  
65 70 75 80

Val Ile Glu Arg Tyr His Ile Pro Arg Ala Cys Pro Arg Glu Val Gln  
85 90 95

Met Gly Asp Phe Val Arg Tyr His Tyr Asn Gly Thr Phe Glu Asp Gly  
100 105 110

Lys Lys Phe Asp Ser Ser Tyr Asp Arg Asn Thr Leu Val Ala Ile Val  
115 120 125

Val Gly Val Gly Arg Leu Ile Thr Gly Met Asp Arg Gly Leu Met Gly  
130 135 140

Met Cys Val Asn Glu Arg Arg Arg Leu Ile Val Pro Pro His Leu Gly  
145 150 155 160

Tyr Gly Ser Ile Gly Leu Ala Gly Leu Ile Pro Pro Asp Ala Thr Leu  
165 170 175

Tyr Phe Asp Val Val Leu Leu Asp Val Trp Asn Lys Glu Asp Thr Val  
180 185 190

Gln Val Ser Thr Leu Leu Arg Pro Pro His Cys Pro Arg Met Val Gln  
195 200 205

Asp Gly Asp Phe Val Arg Tyr His Tyr Asn Gly Thr Leu Leu Asp Gly  
210 215 220

Thr Ser Phe Asp Thr Ser Tyr Ser Lys Gly Gly Thr Tyr Asp Thr Tyr  
225 230 235 240

Val Gly Ser Gly Trp Leu Ile Lys Gly Met Asp Gln Gly Leu Leu Gly  
245 250 255

Met Cys Pro Gly Glu Arg Arg Lys Ile Ile Ile Pro Pro Phe Leu Ala  
260 265 270

Tyr Gly Glu Lys Gly Tyr Gly Glu Gly Gly Gln Gly His Lys Gly Lys  
275 280 285

Phe Arg Arg Arg Gly Lys Asn Gln Ala Ser Thr Tyr Ser Cys Ser Gly  
290 295 300

Cys Ile Leu His Glu Gly Ile Gln Pro Arg Thr Gln Gly Gly Met Lys  
305 310 315 320

Ser Thr Leu Gly Ala Thr Lys Lys Gly Cys Phe Gly Arg Ala Trp Trp  
325 330 335

Leu Thr Leu Val Ile Pro Ala Leu Trp Glu Ala Lys Ala Gly Gly Ser  
340 345 350

Arg Gly Gln Glu Ile Glu Thr Thr Val Lys Pro Arg Leu Tyr  
355 360 365

<210> 1693

<211> 361

<212> PRT

<213> Homo sapiens

<400> 1693

Leu Pro Gln Ser Arg Trp Asn Lys Ser Ser Thr Pro Asp Gly Val Pro  
1 5 10 15

Thr Leu Cys Cys Arg Asn Glu Ala Arg Gln Gln Ile Ser Ile Ser Arg  
20 25 30

Met Trp Gly Leu Lys Val Leu Leu Leu Pro Val Val Ser Phe Ala Leu  
35 40 45

Tyr Pro Glu Glu Ile Leu Asp Thr His Trp Glu Leu Trp Lys Lys Thr  
50 55 60

His Arg Lys Gln Tyr Asn Asn Lys Val Asp Glu Ile Ser Arg Arg Leu  
65 70 75 80

Ile Trp Glu Lys Asn Leu Lys Tyr Ile Ser Ile His Asn Leu Glu Ala  
85 90 95

Ser Leu Gly Val His Thr Tyr Glu Leu Ala Met Asn His Leu Gly Asp  
100 105 110

Met Thr Ser Glu Glu Val Val Gln Lys Met Thr Gly Leu Lys Val Pro  
115 120 125

Leu Ser His Ser Arg Ser Asn Asp Thr Leu Tyr Ile Pro Glu Trp Glu  
130 135 140

Gly Arg Ala Pro Asp Ser Val Asp Tyr Arg Lys Lys Gly Tyr Val Thr  
145 150 155 160

Pro Val Lys Asn Gln Gly Gln Cys Gly Ser Cys Trp Ala Phe Ser Ser  
165 170 175

Val Gly Ala Leu Glu Gly Gln Leu Lys Lys Lys Thr Gly Lys Leu Leu  
180 185 190

Asn Leu Ser Pro Gln Asn Leu Val Asp Cys Val Ser Glu Asn Asp Gly  
195 200 205

Cys Gly Gly Gly Tyr Met Thr Asn Ala Phe Gln Tyr Val Gln Lys Asn  
210 215 220

Arg Gly Ile Asp Ser Glu Asp Ala Tyr Pro Tyr Val Gly Gln Glu Glu  
225 230 235 240

Ser Cys Met Tyr Asn Pro Thr Gly Lys Ala Ala Lys Cys Arg Gly Tyr  
245 250 255

Arg Glu Ile Pro Glu Gly Asn Glu Lys Ala Leu Lys Arg Ala Val Ala  
260 265 270

Arg Val Gly Pro Val Ser Val Ala Ile Asp Ala Ser Leu Thr Ser Phe  
275 280 285

Gln Phe Tyr Ser Lys Gly Val Tyr Tyr Asp Glu Ser Cys Asn Ser Asp  
290 295 300

Asn Leu Asn His Ala Val Leu Ala Val Gly Tyr Gly Ile Gln Lys Gly  
305 310 315 320

Asn Lys His Trp Ile Ile Lys Asn Ser Trp Gly Glu Asn Trp Gly Asn  
325 330 335

Lys Gly Tyr Ile Leu Met Ala Arg Asn Lys Asn Asn Ala Cys Gly Ile  
340 345 350

Ala Asn Leu Ala Ser Phe Pro Lys Met  
355 360

<210> 1694

<211> 282

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1694

Pro Arg Val Arg Arg Gly Pro Arg Val Ser Ser Met Ala Ser Ala Asp  
1 5 10 15

Ser Arg Arg Xaa Ala Asp Gly Gly Gly Ala Gly Gly Thr Phe Gln Pro  
20 25 30

Tyr Leu Asp Thr Leu Arg Gln Glu Leu Gln Gln Thr Asp Pro Thr Leu  
35 40 45

Leu Ser Val Val Val Ala Val Leu Ala Val Leu Leu Thr Leu Val Phe  
50 55 60

Trp Lys Leu Ile Arg Ser Arg Arg Ser Ser Gln Arg Ala Val Leu Leu  
65 70 75 80

Val Gly Leu Cys Asp Ser Gly Lys Thr Leu Leu Phe Val Arg Leu Leu  
85 90 95

Thr Gly Leu Tyr Arg Asp Thr Gln Thr Ser Ile Thr Asp Ser Cys Ala  
100 105 110

Val Tyr Arg Val Asn Asn Asn Arg Gly Asn Ser Leu Thr Leu Ile Asp  
115 120 125

Leu Pro Gly His Glu Ser Leu Arg Leu Gln Phe Leu Glu Arg Phe Lys  
130 135 140

Ser Ser Ala Arg Ala Ile Val Phe Val Val Asp Ser Ala Ala Phe Gln  
145 150 155 160

Arg Glu Val Lys Asp Val Ala Glu Phe Leu Tyr Gln Val Leu Ile Asp  
165 170 175

Ser Met Gly Leu Lys Asn Thr Pro Ser Phe Leu Ile Ala Cys Asn Lys  
180 185 190

Gln Asp Ile Ala Met Ala Lys Ser Ala Lys Leu Ile Gln Gln Gln Leu  
195 200 205

Glu Lys Glu Leu Asn Thr Leu Arg Val Thr Arg Ser Ala Ala Pro Ser  
210 215 220

Thr Leu Asp Ser Ser Ser Thr Ala Pro Ala Gln Leu Gly Lys Lys Gly  
225 230 235 240

Lys Glu Phe Glu Phe Ser Gln Leu Pro Leu Lys Val Glu Phe Leu Glu  
245 250 255

Cys Ser Ala Lys Gly Gly Arg Gly Asp Val Gly Ser Ala Asp Ile Gln  
260 265 270

Asp Leu Glu Lys Trp Leu Ala Lys Ile Ala  
275 280

<210> 1695  
<211> 232  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (113)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1695  
Gly Val Asp Thr Ser Pro Phe Ala Lys Ser Leu Gly His Ser Arg Gly  
1 5 10 15

Glu Ala Asp Leu Phe Asp Ser Gly Asp Ile Phe Ser Thr Gly Thr Gly  
20 25 30

Ser Gln Ser Val Glu Arg Thr Lys Pro Lys Ala Lys Ile Ala Glu Asn  
35 40 45

Pro Ala Asn Pro Pro Val Gly Gly Lys Ala Lys Ser Pro Met Phe Pro  
50 55 60

Ala Leu Gly Glu Ala Ser Ser Asp Asp Asp Leu Phe Gln Ser Ala Lys  
65 70 75 80

Pro Lys Pro Ala Lys Lys Thr Asn Pro Phe Pro Leu Leu Glu Asp Glu  
85 90 95

Asp Asp Leu Phe Thr Asp Gln Lys Val Lys Lys Asn Glu Thr Lys Ser  
100 105 110

Xaa Ser Gln Gln Asp Val Ile Leu Thr Thr Gln Asp Ile Phe Glu Asp  
115 120 125

Asp Ile Phe Ala Thr Glu Ala Ile Lys Pro Ser Gln Lys Thr Arg Glu  
130 135 140

Lys Glu Lys Thr Leu Glu Ser Asn Leu Phe Asp Asp Asn Ile Asp Ile  
145 150 155 160

Phe Ala Asp Leu Thr Val Lys Pro Lys Glu Lys Ser Lys Lys Lys Val  
165 170 175

Glu Ala Lys Ser Ile Phe Asp Asp Asp Met Asp Asp Ile Phe Ser Ser  
180 185 190

Gly Ile Gln Ala Lys Thr Thr Lys Pro Lys Ser Arg Ser Ala Gln Ala

195

200

205

Ala Pro Glu Pro Arg Phe Glu His Lys Val Ser Asn Ile Phe Asp Asp  
 210 215 220

Pro Leu Asn Ala Phe Gly Gly Gln  
 225 230

<210> 1696  
 <211> 123  
 <212> PRT  
 <213> Homo sapiens

<400> 1696  
 Arg Gly Gly Ser Pro Glu Val Ser Gly Asn Gly Ala Ala Leu Phe Glu  
 1 5 10 15

Met Phe Ser Tyr Leu Ile Leu Cys Pro Ser Arg Gly Ser Ser Leu Ile  
 20 25 30

Cys Leu Ala Trp Pro Cys Val Pro Val Pro Cys Ser Thr Ala Tyr  
 35 40 45

Leu Val Pro Gln Val Leu Leu Ala Thr Pro Ala Val Thr Leu Asn Ser  
 50 55 60

Phe Asn Ser Ala Leu Asn Ala Pro Ala Ser Glu Ala Cys Pro Ile Ser  
 65 70 75 80

Phe Phe Leu Ala Ser Val Phe Phe Phe Ser Phe Phe Phe Pro Cys Phe  
 85 90 95

Cys Arg Arg Leu Arg Gly Glu Ser Phe Leu Trp Leu Pro Leu Leu Arg  
 100 105 110

Leu Glu Leu Glu Glu Asn Leu Ile Phe Cys Ile  
 115 120

<210> 1697  
 <211> 272  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (256)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (258)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (262)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (263)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (267)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1697

Pro Ala Pro Ala Ala His Val Ala Gly Asn Pro Gly Gly Asp Ala Ala  
1 5 10 15

Pro Ala Ala Thr Gly Thr Ala Ala Ala Ala Ser Leu Ala Thr Ala Ala  
20 25 30

Gly Ser Glu Asp Ala Glu Lys Lys Val Leu Ala Thr Lys Val Leu Gly  
35 40 45

Thr Val Lys Trp Phe Asn Val Arg Asn Gly Tyr Gly Phe Ile Asn Arg  
50 55 60

Asn Asp Thr Lys Glu Asp Val Phe Val His Gln Thr Ala Ile Lys Lys  
65 70 75 80

Asn Asn Pro Arg Lys Tyr Leu Arg Ser Val Gly Asp Gly Glu Thr Val  
85 90 95

Glu Phe Asp Val Val Glu Gly Glu Lys Gly Ala Glu Ala Ala Asn Val  
100 105 110

Thr Gly Pro Asp Gly Val Pro Val Glu Gly Ser Arg Tyr Ala Ala Asp  
115 120 125

Arg Arg Arg Tyr Arg Arg Gly Tyr Tyr Gly Arg Arg Arg Gly Pro Pro  
130 135 140

Arg Asn Ala Gly Glu Ile Gly Glu Met Lys Asp Gly Val Pro Glu Gly  
145 150 155 160

Ala Gln Leu Gln Gly Pro Val His Arg Asn Pro Thr Tyr Arg Pro Arg  
165 170 175

Tyr Arg Ser Arg Gly Pro Pro Arg Pro Arg Pro Ala Pro Ala Val Gly  
180 185 190

Glu Ala Glu Asp Lys Glu Asn Gln Gln Ala Thr Ser Gly Pro Asn Gln  
195 200 205

Pro Ser Val Arg Arg Gly Tyr Arg Arg Pro Tyr Asn Tyr Arg Arg Arg  
210 215 220

Pro Arg Pro Pro Asn Ala Pro Ser Gln Asp Gly Lys Glu Ala Lys Ala  
225 230 235 240

Gly Glu Ala Pro Thr Glu Asn Pro Ala Pro Pro Thr Ser Arg Ala Xaa  
245 250 255

Leu Xaa Asn Thr Arg Xaa Xaa Arg His Leu Xaa His Arg Gln Val Thr  
260 265 270

<210> 1698  
<211> 88  
<212> PRT  
<213> Homo sapiens

<400> 1698  
Arg Glu Thr Ala Cys Cys Gly Arg Asp Ala Arg Gly Ala Ala Pro Ala  
1 5 10 15

Ala Met Ala Val Thr Ala Leu Ala Ala Arg Thr Trp Leu Gly Val Trp  
20 25 30

Gly Val Arg Thr Met Gln Ala Arg Gly Phe Gly Ser Asp Gln Ser Glu  
35 40 45

Asn Val Asp Arg Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe  
50 55 60

Gly Lys Arg Glu Gln Ala Glu Glu Glu Arg Tyr Phe Arg His Tyr Arg  
65 70 75 80

Leu Cys Phe Glu Ile Ser Leu Gly  
85



<210> 1699  
<211> 223  
<212> PRT  
<213> Homo sapiens

<400> 1699

Cys Cys Ser Glu Gln Gln Arg Ile Ser Lys Asp Leu Ala Asn Ile Cys  
1 5 10 15

Lys Thr Ala Ala Thr Ala Gly Ile Ile Gly Trp Val Tyr Gly Gly Ile  
20 25 30

Pro Ala Phe Ile His Ala Lys Gln Gln Tyr Ile Glu Gln Ser Gln Ala  
35 40 45

Glu Ile Tyr His Asn Arg Phe Asp Ala Val Gln Ser Ala His Arg Ala  
50 55 60

Ala Thr Arg Gly Phe Ile Arg Tyr Gly Trp Arg Trp Gly Trp Arg Thr  
65 70 75 80

Ala Val Phe Val Thr Ile Phe Asn Thr Val Asn Thr Ser Leu Asn Val  
85 90 95

Tyr Arg Asn Lys Asp Ala Leu Ser His Phe Val Ile Ala Gly Ala Val  
100 105 110

Thr Gly Ser Leu Phe Arg Ile Asn Val Gly Leu Arg Gly Leu Val Ala  
115 120 125

Gly Gly Ile Ile Gly Ala Leu Leu Gly Thr Pro Val Gly Gly Leu Leu  
130 135 140

Met Ala Phe Gln Lys Tyr Ser Gly Glu Thr Val Gln Glu Arg Lys Gln  
145 150 155 160

Lys Asp Arg Lys Ala Leu His Glu Leu Lys Leu Glu Glu Trp Lys Gly  
165 170 175

Arg Leu Gln Val Thr Glu His Leu Pro Glu Lys Ile Glu Ser Ser Leu  
180 185 190

Gln Glu Asp Glu Pro Glu Asn Asp Ala Lys Lys Ile Glu Ala Leu Leu  
195 200 205

Asn Leu Pro Arg Asn Pro Ser Val Ile Asp Lys Gln Asp Lys Asp  
210 215 220

<210> 1700  
<211> 543  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (264)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (269)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (279)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1700  
Ala Arg Ala Arg Leu Thr Cys Pro Arg Arg Arg Gly Pro Trp Glu Ala  
1 5 10 15  
Gly Ser Arg Ala Thr Val Ser Leu Thr Arg Leu Ala Leu Gly Val Pro  
20 25 30  
Gly Pro Arg Glu His Pro Gly Gln Pro Glu Asp Ser Pro Glu Ala Glu  
35 40 45  
Ala Ser Thr Leu Asp Val Phe Thr Glu Arg Leu Pro Pro Ser Gly Arg  
50 55 60  
Ile Thr Lys Thr Glu Ser Leu Val Ile Pro Ser Thr Arg Ser Glu Gly  
65 70 75 80  
Lys Gln Ala Gly Arg Arg Gly Arg Ser Thr Ser Leu Lys Glu Arg Gln  
85 90 95  
Ala Ala Arg Pro Gln Asn Glu Arg Ala Asn Ser Leu Asp Asn Glu Arg  
100 105 110  
Cys Pro Asp Ala Arg Ser Gln Leu Gln Ile Pro Arg Lys Thr Val Tyr  
115 120 125  
Asp Gln Leu Asn His Ile Leu Ile Ser Asp Asp Gln Leu Pro Glu Asn  
130 135 140  
Ile Ile Leu Val Asn Thr Ser Asp Trp Gln Gly Gln Phe Leu Ser Asp  
145 150 155 160

Val Leu Gln Arg His Thr Leu Pro Val Val Cys Thr Cys Ser Pro Ala  
165 170 175

Asp Val Gln Ala Ala Phe Ser Thr Ile Val Ser Arg Ile Gln Arg Tyr  
180 185 190

Cys Asn Cys Asn Ser Gln Pro Pro Thr Pro Val Lys Ile Ala Val Ala  
195 200 205

Gly Ala Gln His Tyr Leu Ser Ala Ile Leu Arg Leu Phe Val Glu Gln  
210 215 220

Leu Ser His Lys Thr Pro Asp Trp Leu Gly Tyr Met Arg Phe Leu Val  
225 230 235 240

Ile Pro Leu Gly Ser His Pro Val Ala Arg Tyr Leu Gly Ser Val Asp  
245 250 255

Tyr Arg Tyr Asn Asn Phe Phe Xaa Asp Leu Ala Trp Xaa Asp Leu Phe  
260 265 270

Asn Lys Leu Glu Ala Gln Xaa Ala Val Gln Asp Thr Pro Asp Ile Val  
275 280 285

Ser Arg Ile Thr Gln Tyr Ile Ala Gly Ala Asn Cys Ala His Gln Leu  
290 295 300

Pro Ile Ala Glu Ala Met Leu Thr Tyr Lys Gln Lys Ser Pro Asp Glu  
305 310 315 320

Glu Ser Ser Gln Lys Phe Ile Pro Phe Val Gly Val Val Lys Val Gly  
325 330 335

Ile Val Glu Pro Ser Ser Ala Thr Ser Gly Asp Ser Asp Asp Ala Ala  
340 345 350

Pro Ser Gly Ser Gly Thr Leu Ser Ser Thr Pro Pro Ser Ala Ser Pro  
355 360 365

Ala Ala Lys Glu Ala Ser Pro Thr Pro Pro Ser Ser Pro Ser Val Ser  
370 375 380

Gly Gly Leu Ser Ser Pro Ser Gln Gly Val Gly Ala Glu Leu Met Gly  
385 390 395 400

Leu Gln Val Asp Tyr Trp Thr Ala Ala Gln Pro Ala Asp Arg Lys Arg  
405 410 415

Asp Ala Glu Lys Lys Asp Leu Pro Val Thr Lys Asn Thr Leu Lys Cys  
420 425 430

Thr Phe Arg Ser Leu Gln Val Ser Arg Leu Pro Ser Ser Gly Glu Ala  
435 440 445

Ala Ala Thr Pro Thr Met Ser Met Thr Val Val Thr Lys Glu Lys Asn  
450 455 460

Lys Lys Val Met Phe Leu Pro Lys Lys Ala Lys Asp Lys Asp Val Glu  
465 470 475 480

Ser Lys Ser Gln Cys Ile Glu Gly Ile Ser Arg Leu Ile Cys Thr Ala  
485 490 495

Arg Gln Gln Gln Asn Met Leu Arg Val Leu Ile Asp Gly Val Glu Cys  
500 505 510

Ser Asp Val Lys Phe Phe Gln Leu Ala Ala Gln Trp Ser Ser His Val  
515 520 525

Lys His Phe Pro Ile Cys Ile Phe Gly His Ser Lys Ala Thr Phe  
530 535 540

<210> 1701

<211> 71

<212> PRT

<213> Homo sapiens

<400> 1701

Ile Pro Ser Tyr Thr Ile Lys Cys Ser Ile Gly Arg Gln Ser Val Ser  
1 5 10 15

Phe Phe Phe Tyr Val Tyr Cys Leu Cys Gly Val Lys Tyr Lys Ala Leu  
20 25 30

Gly Cys Ile Thr Tyr Ser Lys Ala Val Thr Leu Ser Leu Ile Cys Cys  
35 40 45

Asp Pro Leu Lys Met Cys Trp Gly Leu Phe Cys Cys His Cys Leu Cys  
50 55 60

Cys Trp Asn Leu Ala Leu Ser  
65 70

<210> 1702

<211> 131

<212> PRT

<213> Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (79)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1702

Glu His Val Phe Gly Phe Leu Phe Cys Val Ser Leu Leu Arg Ile Met  
1 5 10 15

Ala Ser Ser Ser Asp Gly Ile Ser Leu Ser Tyr Arg Pro Val Val Thr  
20 25 30

Gly Gln Asp Arg Met Met Asp Thr Glu Val Leu Ser Leu Leu Ser Ser  
35 40 45

Val Ala Leu Pro Ser Leu Leu Leu Ala Ser Glu Ser Phe Asp Ser Ile  
50 55 60

Tyr Pro Gly Ile Phe Cys Val Leu Met Phe Ser Ser Gly Leu Xaa Ser  
65 70 75 80

Ala Val Leu Ile Gly Arg Ala Leu Ser Phe Gln Ala Ile Leu Lys Gly  
85 90 95

Gly Gln Ser Lys Gly Gln Ser Leu Asn Pro Phe Cys Gly Leu Asn Asn  
100 105 110

Leu Arg Ile Lys Ser Ser Val Leu Leu Ile Pro Val Leu Leu Cys Gln  
115 120 125

Thr Leu Ser  
130

&lt;210&gt; 1703

&lt;211&gt; 330

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1703

His Gly Asn Pro Asp Arg Arg Pro Arg Gly Glu Glu Glu Gly Asp Pro  
1 5 10 15

Val Gly Pro Ala Thr Leu Ser Ala Arg Leu Gly Ala Ser Ala Gly Ala  
20 25 30

Met Thr Ser Leu Thr Gln Arg Ser Ser Gly Leu Val Gln Arg Arg Thr  
35 40 45

Glu Ala Ser Arg Asn Ala Ala Asp Lys Glu Arg Ala Ala Gly Gly Gly  
50 55 60

Ala Gly Ser Ser Glu Asp Asp Ala Gln Ser Arg Arg Asp Glu Gln Asp  
65 70 75 80

Asp Asp Asp Lys Gly Asp Ser Lys Glu Thr Arg Leu Thr Leu Met Glu  
85 90 95

Glu Val Leu Leu Leu Gly Leu Lys Asp Arg Glu Gly Tyr Thr Ser Phe  
100 105 110

Trp Asn Asp Cys Ile Ser Ser Gly Leu Arg Gly Cys Met Leu Ile Glu  
115 120 125

Leu Ala Leu Arg Gly Arg Leu Gln Leu Glu Ala Cys Gly Met Arg Arg  
130 135 140

Lys Ser Leu Leu Thr Arg Lys Val Ile Cys Lys Ser Asp Ala Pro Thr  
145 150 155 160

Gly Asp Val Leu Leu Asp Glu Ala Leu Lys His Val Lys Glu Thr Gln  
165 170 175

Pro Pro Glu Thr Val Gln Asn Trp Ile Glu Leu Leu Ser Gly Glu Thr  
180 185 190

Trp Asn Pro Leu Lys Leu His Tyr Gln Leu Arg Asn Val Arg Glu Arg  
195 200 205

Leu Ala Lys Asn Leu Val Glu Lys Gly Val Leu Thr Thr Glu Lys Gln  
210 215 220

Asn Phe Leu Leu Phe Asp Met Thr Thr His Pro Leu Thr Asn Asn Asn  
225 230 235 240

Ile Lys Gln Arg Leu Ile Lys Lys Val Gln Glu Ala Val Leu Asp Lys  
245 250 255

Trp Val Asn Asp Pro His Arg Met Asp Arg Arg Leu Leu Ala Leu Ile  
260 265 270

Tyr Leu Ala His Ala Ser Asp Val Leu Glu Asn Ala Phe Ala Pro Leu  
275 280 285

Leu Asp Glu Gln Tyr Asp Leu Ala Thr Lys Arg Val Arg Gln Leu Leu  
290 295 300

Asp Leu Asp Pro Glu Val Glu Cys Leu Lys Ala Asn Thr Asn Glu Val  
305 310 315 320

Leu Trp Ala Val Val Ala Ala Phe Thr Lys  
325 330

<210> 1704  
<211> 86  
<212> PRT  
<213> Homo sapiens

<400> 1704  
Val Phe Ile Ser Ile Val Ser Leu Arg His Gly Lys Gly Arg Met Leu  
1 5 10 15  
Lys Gln Val Met Phe Val Phe Ser Gly Met Gly Pro Arg Ser His Cys  
20 25 30  
Trp Gly Leu Pro Leu His Val Ala Pro Leu Cys Arg Pro Pro Gly Arg  
35 40 45  
Leu Phe Pro Pro Ser Pro Thr Glu Ala Pro Arg Gly Leu Asn Arg Asn  
50 55 60  
Leu Ala Asn Gln Arg His Phe Phe Cys Pro Ser Ile Phe His Thr Cys  
65 70 75 80  
Pro Thr Val Leu Phe Phe  
85

<210> 1705  
<211> 17  
<212> PRT  
<213> Homo sapiens

<400> 1705  
Phe Gly Gly Glu Glu Met Ala Asp Ser Val Lys Thr Phe Leu Gln Asp  
1 5 10 15

Leu

<210> 1706  
<211> 471  
<212> PRT  
<213> Homo sapiens

<220>

<221> SITE  
 <222> (37)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (41)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (48)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (191)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (373)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (446)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1706

Ser Thr Pro Ser Gly Tyr Leu Glu Leu Pro Asp Leu Gly Gln Pro Tyr  
 1 5 10 15

Ser Ser Ala Val Tyr Ser Leu Glu Glu Gln Tyr Leu Gly Leu Ala Leu  
 20 25 30

Asp Val Asp Arg Xaa Lys Lys Asp Xaa Glu Glu Glu Glu Asp Gln Xaa  
 35 40 45

Pro Pro Cys Pro Arg Leu Ser Arg Glu Leu Leu Glu Val Val Glu Pro  
 50 55 60

Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser Ser  
 65 70 75 80

Cys Leu Glu Gln Pro Asp Ser Cys Gln Pro Tyr Gly Ser Ser Phe Tyr  
 85 90 95

Ala Leu Glu Glu Lys His Val Gly Phe Ser Leu Asp Val Gly Glu Ile  
 100 105 110



Glu Lys Lys Gly Lys Gly Lys Lys Arg Arg Gly Arg Arg Ser Lys Lys  
115 120 125

Glu Arg Arg Arg Gly Arg Lys Glu Gly Glu Glu Asp Gln Asn Pro Pro  
130 135 140

Cys Pro Arg Leu Ser Arg Glu Leu Leu Asp Glu Lys Gly Pro Glu Val  
145 150 155 160

Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro Ser Gly Cys Leu  
165 170 175

Glu Leu Thr Asp Ser Cys Gln Pro Tyr Arg Ser Ala Phe Tyr Xaa Leu  
180 185 190

Glu Gln Gln Arg Val Gly Leu Ala Val Asp Met Asp Glu Ile Glu Lys  
195 200 205

Tyr Gln Glu Val Glu Glu Asp Gln Asp Pro Ser Cys Pro Arg Leu Ser  
210 215 220

Arg Glu Leu Leu Asp Glu Lys Glu Pro Glu Val Leu Gln Asp Ser Leu  
225 230 235 240

Asp Arg Cys Tyr Ser Thr Pro Ser Gly Tyr Leu Glu Leu Pro Asp Leu  
245 250 255

Gly Gln Pro Tyr Ser Ser Ala Val Tyr Ser Leu Glu Glu Gln Tyr Leu  
260 265 270

Gly Leu Ala Leu Asp Val Asp Arg Ile Lys Lys Asp Gln Glu Glu Glu  
275 280 285

Glu Asp Gln Gly Pro Pro Cys Pro Arg Leu Ser Arg Glu Leu Leu Glu  
290 295 300

Val Val Glu Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser  
305 310 315 320

Thr Pro Ser Ser Cys Leu Glu Gln Pro Asp Ser Cys Gln Pro Tyr Gly  
325 330 335

Ser Ser Phe Tyr Ala Leu Glu Glu Lys His Val Gly Phe Ser Leu Asp  
340 345 350

Val Gly Glu Ile Glu Lys Lys Gly Lys Gly Lys Lys Arg Arg Gly Arg  
355 360 365

Arg Ser Lys Lys Xaa Arg Arg Arg Gly Arg Lys Glu Gly Glu Glu Asp  
370 375 380

Gln Asn Pro Pro Cys Pro Arg Leu Asn Gly Val Leu Met Glu Val Glu  
385 390 395 400

Glu Pro Glu Val Leu Gln Asp Ser Leu Asp Arg Cys Tyr Ser Thr Pro  
405 410 415

Ser Met Tyr Phe Glu Leu Pro Asp Ser Phe Gln His Tyr Arg Ser Val  
420 425 430

Phe Tyr Ser Phe Glu Glu Gln His Ile Ser Phe Ala Leu Xaa Val Asp  
435 440 445

Asn Arg Phe Phe Thr Leu Thr Val Thr Ser Leu His Leu Val Phe Gln  
450 455 460

Met Gly Val Ile Phe Pro Gln  
465 470

<210> 1707

<211> 250

<212> PRT

<213> Homo sapiens

<400> 1707

Arg Glu Arg Asn Leu Gly Ala Pro Gly Ser Gly Leu Lys Ala Ala Arg  
1 5 10 15

Gln Ser Arg Ala Val Leu Ala Pro Ala Arg Gly Ala Ala Ala Pro Gly  
20 25 30

Val Ala Met Thr Ser Glu Leu Asp Ile Phe Val Gly Asn Thr Thr Leu  
35 40 45

Ile Asp Glu Asp Val Tyr Arg Leu Trp Leu Asp Gly Tyr Ser Val Thr  
50 55 60

Asp Ala Val Ala Leu Arg Val Arg Ser Gly Ile Leu Glu Gln Thr Gly  
65 70 75 80

Ala Thr Ala Ala Val Leu Gln Ser Asp Thr Met Asp His Tyr Arg Thr  
85 90 95

Phe His Met Leu Glu Arg Leu Leu His Ala Pro Pro Lys Leu Leu His  
100 105 110

Gln Leu Ile Phe Gln Ile Pro Pro Ser Arg Gln Ala Leu Leu Ile Glu  
115 120 125

Arg Tyr Tyr Ala Phe Asp Glu Ala Phe Val Arg Glu Val Leu Gly Lys

130

135

140

Lys Leu Ser Lys Gly Thr Lys Lys Asp Leu Asp Asp Ile Ser Thr Lys  
145 150 155 160

Thr Gly Ile Thr Leu Lys Ser Cys Arg Arg Gln Phe Asp Asn Phe Lys  
165 170 175

Arg Val Phe Lys Val Val Glu Glu Met Arg Gly Ser Leu Val Asp Asn  
180 185 190

Ile Gln Gln His Phe Leu Leu Ser Asp Arg Leu Ala Arg Asp Tyr Ala  
195 200 205

Ala Ile Val Phe Phe Ala Asn Asn Arg Phe Glu Thr Gly Lys Lys Lys  
210 215 220

Leu Gln Tyr Leu Ser Phe Gly Asp Phe Ala Phe Cys Ala Glu Leu Met  
225 230 235 240

Ile Gln Asn Trp Thr Leu Trp Ser Arg Arg  
245 250

&lt;210&gt; 1708

&lt;211&gt; 337

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (112)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (127)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (283)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1708

Ile Tyr His Pro Ala Val Val Glu Ser Thr Ile Cys Ser Gly Ile Tyr  
1 5 10 15

Thr Gln Cys Gln Phe Asp Ile Met Leu Gly Gly Thr Asp Cys Arg Thr  
20 25 30

Phe Leu Thr Ser His Ile Asn Leu Lys Lys Thr Leu Cys Asp Val Ile  
35 40 45

Leu Met Val Gln Glu Arg Lys Ile Pro Ala His Arg Val Val Leu Ala  
50 55 60

Ala Ala Ser His Phe Phe Asn Leu Met Phe Thr Thr Asn Met Leu Glu  
65 70 75 80

Ser Lys Ser Phe Glu Val Glu Leu Lys Asp Ala Glu Pro Asp Ile Ile  
85 90 95

Glu Gln Leu Val Glu Phe Ala Tyr Thr Ala Arg Ile Ser Val Asn Xaa  
100 105 110

Asn Asn Val Gln Ser Leu Leu Asp Ala Ala Asn Gln Tyr Gln Xaa Glu  
115 120 125

Pro Val Lys Lys Met Cys Val Asp Phe Leu Lys Glu Gln Val Asp Ala  
130 135 140

Ser Asn Cys Leu Gly Ile Ser Val Leu Ala Glu Cys Leu Asp Cys Pro  
145 150 155 160

Glu Leu Lys Ala Thr Ala Asp Asp Phe Ile His Gln His Phe Thr Glu  
165 170 175

Val Tyr Lys Thr Asp Glu Phe Leu Gln Leu Asp Val Lys Arg Val Thr  
180 185 190

His Leu Leu Asn Gln Asp Thr Leu Thr Val Arg Ala Glu Asp Gln Val  
195 200 205

Tyr Asp Ala Ala Val Arg Trp Leu Lys Tyr Asp Glu Pro Asn Arg Gln  
210 215 220

Pro Phe Met Val Asp Ile Leu Ala Lys Val Arg Phe Pro Leu Ile Ser  
225 230 235 240

Lys Asn Phe Leu Ser Lys Thr Val Gln Ala Glu Pro Leu Ile Gln Asp  
245 250 255

Asn Pro Glu Cys Leu Lys Met Val Ile Ser Gly Met Arg Tyr His Leu  
260 265 270

Leu Ser Pro Glu Asp Arg Glu Glu Leu Val Xaa Gly Thr Arg Pro Arg  
275 280 285

Arg Lys Lys His Asp Tyr Arg Ile Ala Leu Phe Gly Gly Ser Gln Pro  
290 295 300

Gln Ser Cys Arg Tyr Phe Asn Pro Lys Asp Tyr Ser Trp Thr Asp Ile  
305 310 315 320

Arg Cys Pro Phe Glu Lys Arg Glu Met Gln His Ala Cys Phe Gly Thr  
325 330 335

Met

<210> 1709

<211> 101

<212> PRT

<213> Homo sapiens

<400> 1709

Val Ala Ser Gly His Pro Arg Pro Asp Ile Thr Trp Met Lys Asp Asp  
1 5 10 15

Gln Ala Leu Thr Arg Pro Glu Ala Ala Glu Pro Arg Lys Lys Lys Trp  
20 25 30

Thr Leu Ser Leu Lys Asn Leu Arg Pro Glu Asp Ser Gly Lys Tyr Thr  
35 40 45

Cys Arg Val Ser Asn Arg Ala Gly Ala Ile Asn Ala Thr Tyr Lys Val  
50 55 60

Asp Val Ile Gln Arg Thr Arg Ser Lys Pro Val Leu Thr Gly Thr His  
65 70 75 80

Pro Val Asn Thr Thr Val Asp Phe Gly Gly Thr Thr Ser Phe Gln Cys  
85 90 95

Lys Val Arg Thr Thr  
100

<210> 1710

<211> 124

<212> PRT

<213> Homo sapiens

<400> 1710

Lys Leu Glu Leu His Arg Gly Gly Gly Arg Ser Arg Thr Ser Gly Ser  
1 5 10 15

Pro Gly Leu Gln Glu Phe Gly Thr Arg Asn Leu Arg Lys Met Val Ala

20 25 30  
 Met Ala Ala Gly Pro Ser Gly Cys Leu Val Pro Ala Phe Gly Leu Arg  
 35 40 45  
 Leu Leu Leu Ala Thr Val Leu Gln Ala Val Ser Ala Phe Gly Ala Glu  
 50 55 60  
 Phe Ser Ser Glu Ala Cys Arg Glu Leu Gly Phe Ser Ser Asn Leu Leu  
 65 70 75 80  
 Cys Ser Ser Cys Asp Leu Leu Gly Gln Phe Asn Leu Leu Gln Leu Asp  
 85 90 95  
 Pro Asp Cys Arg Gly Cys Cys Gln Glu Glu Ala Gln Phe Glu Thr Lys  
 100 105 110  
 Lys Leu Tyr Ala Gly Ala Ile Leu Glu Val Cys Gly  
 115 120

&lt;210&gt; 1711

&lt;211&gt; 98

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1711

Gly His Ala Ser Phe Arg Ala Phe Ser Phe Pro Pro Ser Ile Ser Asn  
 1 5 10 15  
 Leu Gly Met Phe Gly Ile Asp Glu Phe Thr Ala Val Ile Asn Pro Pro  
 20 25 30  
 Gln Ala Cys Ile Leu Ala Val Gly Arg Phe Arg Pro Val Leu Lys Leu  
 35 40 45  
 Thr Glu Asp Glu Glu Gly Asn Ala Lys Leu Gln Gln Arg Gln Leu Ile  
 50 55 60  
 Thr Val Thr Met Ser Ser Asp Ser Arg Val Val Asp Asp Glu Leu Ala  
 65 70 75 80  
 Thr Arg Phe Leu Lys Ser Phe Lys Ala Asn Leu Glu Asn Pro Ile Arg  
 85 90 95  
 Leu Ala

&lt;210&gt; 1712

&lt;211&gt; 100

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (19)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1712

Gly Ile Lys Gly Pro Trp Thr Glu Ser Cys Leu Gly Gly Pro Ser Gly  
1 5 10 15

Met Gly Xaa Gly His Thr Ser Leu Ala Ile Ser Gln Gln Asp Gln Ser  
20 25 30

Lys Leu Tyr His Leu Pro Pro Pro Thr Val Gly Pro His Ser Ile Ala  
35 40 45

Ser Pro Pro Glu Asp Arg Thr Val Lys Asp Ser Thr Pro Ser Ser Leu  
50 55 60

Asp Ser Asp Pro Leu Met Ala Met Leu Leu Lys Leu Gln Glu Ala Ala  
65 70 75 80

Asn Tyr Ile Glu Ser Pro Asp Arg Glu Thr Ile Leu Asp Pro Asn Leu  
85 90 95

Gln Ala Thr Leu  
100

&lt;210&gt; 1713

&lt;211&gt; 66

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1713

Pro Ile Phe Ile Glu Tyr Phe Leu His Val Gln Leu His Pro Leu Cys  
1 5 10 15

Lys Asp Tyr Met Asn Ile Ala His Ser Leu Leu Val Ser Gln Thr His  
20 25 30

Leu Tyr Ile Phe Leu Ser Glu Ala His Cys Thr Cys Ile Glu Ala Arg  
35 40 45

Ile Glu Ser Arg Lys Ile Lys Pro His Ser Pro Thr Ala Lys Cys Ala  
50 55 60

Phe Pro  
65

<210> 1714  
<211> 107  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (3)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1714  
Gly Thr Xaa Thr Phe Pro Gly Pro Pro Asn Asn Ser Ser Ile His Gly  
1 5 10 15  
Gly Ser Lys Arg Ser Glu Asn Ser Tyr Cys Arg Asp Leu Arg Gly Gln  
20 25 30  
Leu Arg Ala Ile Cys Cys Ser Ser Tyr Ser His Asp Arg His Thr Thr  
35 40 45  
Glu Glu Arg Gly Ser Arg Gly Arg Arg Val Trp Arg Ile Arg Arg Leu  
50 55 60  
His Thr Ser Gly Leu Pro Cys Cys Cys His Ser Gly Pro His Pro Arg  
65 70 75 80  
Arg Leu Pro Asp Ile Leu Arg Leu Val Thr Ser Thr Lys Thr Asp His  
85 90 95  
Thr Asn Thr Thr Glu Gly Thr Leu Asp Tyr Leu  
100 105

<210> 1715  
<211> 491  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (42)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (43)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (44)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1715

Ala Ala Arg Val Gly Arg His Gly Arg Arg Arg Arg Ser Ala Ala Met  
1 5 10 15

Ala Gly Arg Gly Gly Ser Ala Leu Leu Ala Leu Cys Gly Ala Leu Ala  
20 25 30

Ala Cys Gly Trp Leu Leu Gly Ala Glu Xaa Xaa Xaa Pro Gly Ala Pro  
35 40 45

Ala Ala Gly Met Arg Arg Arg Arg Arg Leu Gln Gln Glu Asp Gly Ile  
50 55 60

Ser Phe Glu Tyr His Arg Tyr Pro Glu Leu Arg Glu Ala Leu Val Ser  
65 70 75 80

Val Trp Leu Gln Cys Thr Ala Ile Ser Arg Ile Tyr Thr Val Gly Arg  
85 90 95

Ser Phe Glu Gly Arg Glu Leu Leu Val Ile Glu Leu Ser Asp Asn Pro  
100 105 110

Gly Val His Glu Pro Gly Glu Pro Glu Phe Lys Tyr Ile Gly Asn Met  
115 120 125

His Gly Asn Glu Ala Val Gly Arg Glu Leu Leu Ile Phe Leu Ala Gln  
130 135 140

Tyr Leu Cys Asn Glu Tyr Gln Lys Gly Asn Glu Thr Ile Val Asn Leu  
145 150 155 160

Ile His Ser Thr Arg Ile His Ile Met Pro Ser Leu Asn Pro Asp Gly  
165 170 175

Phe Glu Lys Ala Ala Ser Gln Pro Gly Glu Leu Lys Asp Trp Phe Val  
180 185 190

Gly Arg Ser Asn Ala Gln Gly Ile Asp Leu Asn Arg Asn Phe Pro Asp  
195 200 205

Leu Asp Arg Ile Val Tyr Val Asn Glu Lys Glu Gly Gly Pro Asn Asn  
210 215 220

His Leu Leu Lys Asn Met Lys Lys Ile Val Asp Gln Asn Thr Lys Leu  
225 230 235 240

Ala Pro Glu Thr Lys Ala Val Ile His Trp Ile Met Asp Ile Pro Phe  
245 250 255

Val Leu Ser Ala Asn Leu His Gly Gly Asp Leu Val Ala Asn Tyr Pro  
260 265 270

Tyr Asp Glu Thr Arg Ser Gly Ser Ala His Glu Tyr Ser Ser Ser Pro  
275 280 285

Asp Asp Ala Ile Phe Gln Ser Leu Ala Arg Ala Tyr Ser Ser Phe Asn  
290 295 300

Pro Ala Met Ser Asp Pro Asn Arg Pro Pro Cys Arg Lys Asn Asp Asp  
305 310 315 320

Asp Ser Ser Phe Val Asp Gly Thr Thr Asn Gly Gly Ala Trp Tyr Ser  
325 330 335

Val Pro Gly Gly Met Gln Asp Phe Asn Tyr Leu Ser Ser Asn Cys Phe  
340 345 350

Glu Ile Thr Val Glu Leu Ser Cys Glu Lys Phe Pro Pro Glu Glu Thr  
355 360 365

Leu Lys Thr Tyr Trp Glu Asp Asn Lys Asn Ser Leu Ile Ser Tyr Leu  
370 375 380

Glu Gln Ile His Arg Gly Val Lys Gly Phe Val Arg Asp Leu Gln Gly  
385 390 395 400

Asn Pro Ile Ala Asn Ala Thr Ile Ser Val Glu Gly Ile Asp His Asp  
405 410 415

Val Thr Ser Ala Lys Asp Gly Asp Tyr Trp Arg Leu Leu Ile Pro Gly  
420 425 430

Asn Tyr Lys Leu Thr Ala Ser Ala Pro Gly Tyr Leu Ala Ile Thr Lys  
435 440 445

Lys Val Ala Val Pro Tyr Ser Pro Ala Ala Gly Val Asp Phe Glu Leu  
450 455 460

Glu Ser Phe Ser Glu Arg Lys Glu Glu Glu Lys Glu Glu Leu Met Glu  
465 470 475 480

Trp Trp Lys Met Met Ser Glu Thr Leu Asn Phe  
485 490

<210> 1716  
<211> 179  
<212> PRT  
<213> Homo sapiens

<400> 1716

Ala Ala Glu Glu Thr Gly Gly Ala Gln Pro Glu Gly Arg Gly Val Gly  
1 5 10 15

Pro Lys Glu Arg Glu Leu Gln His Ala Ala Leu Gly Gly Thr Ala Ile  
20 25 30

Gln Pro Cys Phe Phe Gln Asp Ile Ser Met Glu Ile Pro Gln Glu Phe  
35 40 45

Gln Lys Thr Val Ser Thr Met Tyr Tyr Leu Trp Met Cys Ser Thr Leu  
50 55 60

Ala Leu Leu Leu Asn Phe Leu Ala Cys Leu Ala Ser Phe Cys Val Glu  
65 70 75 80

Thr Asn Asn Gly Ala Gly Phe Gly Leu Ser Ile Leu Trp Val Leu Leu  
85 90 95

Phe Thr Pro Cys Ser Phe Val Cys Trp Tyr Arg Pro Met Tyr Lys Ala  
100 105 110

Phe Arg Ser Asp Ser Ser Phe Asn Phe Phe Val Phe Phe Phe Ile Phe  
115 120 125

Phe Val Gln Asp Val Leu Phe Val Leu Gln Ala Ile Gly Ile Pro Gly  
130 135 140

Trp Gly Phe Ser Gly Trp Ile Ser Ala Leu Val Val Pro Lys Ala Thr  
145 150 155 160

Gln Gln Tyr Pro Cys Ser Cys Cys Trp Ser Pro Cys Ser Ser Leu Ala  
165 170 175

Leu Leu Cys

<210> 1717  
<211> 499  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (11)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (485)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (486)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1717  
Arg Pro Val Arg Asn Ser Arg Val Thr Thr Xaa Pro Pro Ala Gln Gln  
1 5 10 15  
Thr Arg Arg Asp Gln Ser Val Pro Val Gly Ser Met Ala Thr Lys Cys  
20 25 30  
Gly Asn Cys Gly Pro Gly Tyr Ser Thr Pro Leu Glu Ala Met Lys Gly  
35 40 45  
Pro Arg Glu Glu Ile Val Tyr Leu Pro Cys Ile Tyr Arg Asn Thr Gly  
50 55 60  
Thr Glu Ala Pro Asp Tyr Leu Ala Thr Val Asp Val Asp Pro Lys Ser  
65 70 75 80  
Pro Gln Tyr Cys Gln Val Ile His Arg Leu Pro Met Pro Asn Leu Lys  
85 90 95  
Asp Glu Leu His His Ser Gly Trp Asn Thr Cys Ser Ser Cys Phe Gly  
100 105 110  
Asp Ser Thr Lys Ser Arg Thr Lys Leu Val Leu Pro Ser Leu Ile Ser  
115 120 125  
Ser Arg Ile Tyr Val Val Asp Val Gly Ser Glu Pro Arg Ala Pro Lys  
130 135 140  
Leu His Lys Val Ile Glu Pro Lys Asp Ile His Ala Lys Cys Glu Leu  
145 150 155 160  
Ala Phe Leu His Thr Ser His Cys Leu Ala Ser Gly Glu Val Met Ile  
165 170 175  
Ser Ser Leu Gly Asp Val Lys Gly Asn Gly Lys Gly Gly Phe Val Leu

180 185 190

Leu Asp Gly Glu Thr Phe Glu Val Lys Gly Thr Trp Glu Arg Pro Gly  
195 200 205

Gly Ala Ala Pro Leu Gly Tyr Asp Phe Trp Tyr Gln Pro Arg His Asn  
210 215 220

Val Met Ile Ser Thr Glu Trp Ala Ala Pro Asn Val Leu Arg Asp Gly  
225 230 235 240

Phe Asn Pro Ala Asp Val Glu Ala Gly Leu Tyr Gly Ser His Leu Tyr  
245 250 255

Val Trp Asp Trp Gln Arg His Glu Ile Val Gln Thr Leu Ser Leu Lys  
260 265 270

Asp Gly Leu Ile Pro Leu Glu Ile Arg Phe Leu His Asn Pro Asp Ala  
275 280 285

Ala Gln Gly Phe Val Gly Cys Ala Leu Ser Ser Thr Ile Gln Arg Phe  
290 295 300

Tyr Lys Asn Glu Gly Gly Thr Trp Ser Val Glu Lys Val Ile Gln Val  
305 310 315 320

Pro Pro Lys Lys Val Lys Gly Trp Leu Leu Pro Glu Met Pro Gly Leu  
325 330 335

Ile Thr Asp Ile Leu Leu Ser Leu Asp Asp Arg Phe Leu Tyr Phe Ser  
340 345 350

Asn Trp Leu His Gly Asp Leu Arg Gln Tyr Asp Ile Ser Asp Pro Gln  
355 360 365

Arg Pro Arg Leu Thr Gly Gln Leu Phe Leu Gly Gly Ser Ile Val Lys  
370 375 380

Gly Gly Pro Val Gln Val Leu Glu Asp Glu Glu Leu Lys Ser Gln Pro  
385 390 395 400

Glu Pro Leu Val Val Lys Gly Lys Arg Val Ala Gly Gly Pro Gln Met  
405 410 415

Ile Gln Leu Ser Leu Asp Gly Lys Arg Leu Tyr Ile Thr Thr Ser Leu  
420 425 430

Tyr Ser Ala Trp Asp Lys Gln Phe Tyr Pro Asp Leu Ile Arg Glu Gly  
435 440 445

Ser Val Met Leu Gln Val Asp Val Asp Thr Val Lys Gly Gly Leu Lys

450

455

460

Leu Asn Pro Asn Phe Leu Val Asp Phe Gly Lys Glu Pro Leu Gly Pro  
 465 470 475 480

Ala Leu Ala His Xaa Xaa Arg Tyr Pro Gly Gly Asp Cys Ser Ser Asp  
 485 490 495

Ile Trp Ile

<210> 1718

<211> 213

<212> PRT

<213> Homo sapiens

<400> 1718

Phe Ile Met Asp Asn Leu Ser Ser Glu Glu Ile Gln Gln Arg Ala His  
 1 5 10 15

Gln Ile Thr Asp Glu Ser Leu Glu Ser Thr Arg Arg Ile Leu Gly Leu  
 20 25 30

Ala Ile Glu Ser Gln Asp Ala Gly Ile Lys Thr Ile Thr Met Leu Asp  
 35 40 45

Glu Gln Lys Glu Gln Leu Asn Arg Ile Glu Glu Gly Leu Asp Gln Ile  
 50 55 60

Asn Lys Asp Met Arg Glu Thr Glu Lys Thr Leu Thr Glu Leu Asn Lys  
 65 70 75 80

Cys Cys Gly Leu Cys Val Cys Pro Cys Asn Arg Thr Lys Asn Phe Glu  
 85 90 95

Ser Gly Lys Ala Tyr Lys Thr Thr Trp Gly Asp Gly Gly Glu Asn Ser  
 100 105 110

Pro Cys Asn Val Val Ser Lys Gln Pro Gly Pro Val Thr Asn Gly Gln  
 115 120 125

Leu Gln Gln Pro Thr Thr Gly Ala Ala Ser Gly Gly Tyr Ile Lys Arg  
 130 135 140

Ile Thr Asn Asp Ala Arg Glu Asp Glu Met Glu Glu Asn Leu Thr Gln  
 145 150 155 160

Val Gly Ser Ile Leu Gly Asn Leu Lys Asp Met Ala Leu Asn Ile Gly  
 165 170 175

Asn Glu Ile Asp Ala Gln Asn Pro Gln Ile Lys Arg Ile Thr Asp Lys  
180 185 190

Ala Asp Thr Asn Arg Asp Arg Ile Asp Ile Ala Asn Ala Arg Ala Lys  
195 200 205

Lys Leu Ile Asp Ser  
210

<210> 1719

<211> 102

<212> PRT

<213> Homo sapiens

<400> 1719

Gly Met Glu Gly Thr Glu Met Gly Ala Arg Pro Gly Gly His Pro Gln  
1 5 10 15

Lys Trp Ser Phe Leu Trp Ser Leu Ala Leu Trp Leu Pro Leu Ala Leu  
20 25 30

Ser Val Ser Leu Phe Leu Gly Leu Ser Leu Ser Pro Pro Gln Pro Gly  
35 40 45

Leu Ser Leu Trp Cys Thr Leu Ser Tyr Cys Cys Glu Gln Trp Lys Phe  
50 55 60

Lys Gly Thr Pro Ser Pro Ala Leu Leu Asn Leu Gly Thr Gln Pro Lys  
65 70 75 80

Lys Asp Lys Lys Leu Glu Asp Ser Ile Ala Thr Gln Leu Arg Glu Leu  
85 90 95

Pro Glu Lys Asn Ser Asn  
100

<210> 1720

<211> 20

<212> PRT

<213> Homo sapiens

<400> 1720

Ala Gln Trp Leu Thr Pro Val Ile Leu Ala Phe Trp Lys Ala Glu Ala  
1 5 10 15

Gly Gly Ser Leu

20

<210> 1721  
<211> 50  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (40)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1721  
Ile Arg His Glu Val Leu Ile Val Pro Leu Leu Val Gly Leu Arg Gln  
1 5 10 15  
Glu Asp His Leu Ser Pro Gly Gly Arg Gly Tyr Ser Glu Pro Arg Val  
20 25 30  
His Tyr Cys Thr Pro Ala Arg Xaa Arg Glu Arg Asp Pro Val Ser Ile  
35 40 45  
Asn Lys  
50

<210> 1722  
<211> 56  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1722  
Glu Xaa Gly Thr Glu Ser His Tyr Val Thr Gln Ala Gly Val Gln Trp  
1 5 10 15  
His Asp Leu Ser Ser Leu Gln Pro Ser Pro Pro Gly Phe Lys Arg Phe  
20 25 30  
Ser Cys Leu Arg Leu Leu Ser Ser Trp Asp Tyr Arg His Thr Pro Pro  
35 40 45  
Arg Pro Ala Asn Phe Leu Tyr Phe  
50 55



<210> 1723  
<211> 111  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (9)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (10)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (11)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (50)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (67)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (110)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1723

Gly Ser Thr His Ala Ser Ala Met Xaa Xaa Xaa Thr Ser Gly Val Gly  
1 5 10 15

Asp Glu Trp Trp Pro Lys Gln Gly Asp Ser Lys Gly Arg Ser Gly Gly  
20 25 30

Arg Pro Trp Arg Thr Ala Ala Arg Ser Gly Leu Thr Gly Ala Ser Ser  
35 40 45

Arg Xaa Arg Trp Thr Thr Ala Pro Arg Trp Ile Ser Ala Tyr Pro Ser  
50 55 60

Val Arg Xaa Ala Lys Glu Gly Arg Leu Gln Glu Val Ile Glu Thr Leu  
 65 70 75 80

Leu Ser Leu Glu Lys Gln Thr Arg Thr Ala Ser Asp Met Val Ser Thr  
 85 90 95

Ser Arg Ile Leu Val Ala Ser Ser Gly Arg Cys Ala Asn Xaa Gly  
 100 105 110

&lt;210&gt; 1724

&lt;211&gt; 75

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (70)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1724

Gly Arg Gly Arg Cys Glu Xaa Gly Lys Met Ala Ala Ala Val Val  
 1 5 10 15

Glu Phe Gln Arg Ala Gln Ser Leu Leu Ser Thr Asp Arg Glu Ala Ser  
 20 25 30

Ile Asp Ile Leu His Ser Ile Val Lys Arg Asp Ile Gln Glu Asn Asp  
 35 40 45

Glu Glu Ala Val Gln Val Lys Glu Gln Ser Ile Leu Glu Leu Gly Ser  
 50 55 60

Leu Leu Ala Lys Thr Xaa Gln Ala Ala Glu Leu  
 65 70 75

&lt;210&gt; 1725

&lt;211&gt; 63

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1725

Pro Gly Ser Arg His His Arg Ala Arg Asp Arg Leu Ile His Phe Gly  
1 5 10 15

Ala Val Ser Thr Asp Val Leu Gly Cys Ser Ala His Cys Ser Leu Thr  
20 25 30

Gln Ser Pro Lys Met Asn Ile Gln Glu Gln Gly Phe Pro Leu Asp Leu  
35 40 45

Gly Ala Ser Phe Thr Glu Asp Ala Pro Pro Xaa Pro Ser Ala Trp  
50 55 60

<210> 1726

<211> 170

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (11)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (89)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (102)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (103)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (106)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (113)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (115)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (118)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (128)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (140)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (153)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (156)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (162)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (169)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1726

Ala Glu Pro Asp Gly Ser His Pro Val Val Xaa Ala Pro Tyr Asn Gly  
1 5 10 15

Gly Pro Ala Gly Thr Cys Pro Lys Ile Lys Gln Glu Ala Val Ser Ser  
20 25 30

Cys Thr His Leu Gly Ala Gly Pro Pro Leu Gln Gln Trp Pro Pro Ala  
35 40 45

Gly Cys His Thr Asp Phe Pro Leu Gly Thr Ala Xaa Pro Gln Gln Asp  
50 55 60

Leu Pro Arg Thr Leu Gly Leu Glu Gly Ser Ala Glu Gln Gln Gly Thr  
65 70 75 80

Val His Pro Ala Leu Pro Val Ser Xaa Arg Val Ser Ile Pro Thr Arg  
85 90 95

Gly Pro Asn Leu Pro Xaa Xaa Phe Leu Xaa Pro Ile Gln Met Gln Pro  
100 105 110

Xaa Val Xaa Xaa Arg Xaa Ile Asn Gln Gly Val Tyr Ala Asn Arg Xaa  
115 120 125

Leu Asp Ala Lys Gly Gly Pro Ser Gln Arg Gly Xaa Arg Arg Leu Trp  
130 135 140

Ala Pro Glu Lys Asp Arg Gln Pro Xaa Phe Asp Xaa Gly Val Trp Glu  
145 150 155 160

Lys Xaa Ser Lys Lys Gly Phe Ser Xaa Phe  
165 170

&lt;210&gt; 1727

&lt;211&gt; 98

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (83)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (97)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (98)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1727

Leu Arg Ala Arg Gly Ala Ala Trp Ala Gly Gly Leu Leu His Arg Ala  
1 5 10 15

Ala Pro Cys Ser Leu Leu Pro Arg Leu Arg Thr Trp Thr Ser Ser Ser  
20 25 30

Asn Arg Ser Arg Glu Asp Ser Trp Leu Lys Ser Leu Phe Val Arg Lys  
35 40 45

Val Asp Pro Arg Lys Asp Ala His Ser Asn Leu Leu Ser Lys Lys Glu  
50 55 60

Thr Ser Asn Leu Tyr Lys Leu Gln Phe His Asn Val Lys Pro Glu Cys  
65 70 75 80

Leu Glu Xaa Tyr Asn Lys Ile Cys Gln Glu Val Leu Pro Lys Ile His  
85 90 95

Xaa Xaa

&lt;210&gt; 1728

&lt;211&gt; 125

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (118)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1728

Gly Ser Leu Phe Pro Arg Val Leu Pro Ser Pro Leu Gly Pro Pro Gly  
1 5 10 15

Gly Lys His Gly Val Cys Pro Gly Ala Val Arg Glu Gln Cys Pro Thr  
20 25 30

Ala Leu Ser Ser Arg Phe Val Lys Phe Ser Met Pro Ser Val Pro Asp  
35 40 45

Phe Glu Thr Leu Phe Ser Gln Val Gln Leu Phe Ile Ser Thr Cys Asn

50

55

60

Gly Glu His Ile Arg Tyr Ala Thr Asp Thr Phe Ala Gly Leu Cys His  
65 70 75 80

Gln Leu Thr Asn Ala Leu Val Glu Arg Lys Gln Pro Leu Arg Gly Ile  
85 90 95

Gly Ile Leu Lys Gln Ala Ile Asp Lys Met Gln Met Asn Thr Asn Gln  
100 105 110

Leu Thr Ser Ile His Xaa Asp Leu Cys Gln Leu Val Cys  
115 120 125

&lt;210&gt; 1729

&lt;211&gt; 55

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (52)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1729

Ile Leu Thr Met Arg Glu Ile Val His Ile Gln Ala Gly Gln Cys Gly  
1 5 10 15

Asn Gln Ile Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly  
20 25 30

His Arg Pro His Arg Ala Pro Thr Thr Gly Asp Ser Asp Leu Pro Ala  
35 40 45

Gly Thr Ala Xaa Ser Val Tyr  
50 55

&lt;210&gt; 1730

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1730

Arg Ile Ala Ala Ser Glu Thr Arg Val Ala Pro Ser Val Leu Arg Leu  
1 5 10 15

Ala Met Thr Ser Tyr Ser Tyr Arg Gln Ser Ser Ala Thr Ser Ser Phe





Val Asp Ile Met Ser Xaa Ala Thr Gln Ala Ile Phe Glu Ile Leu Glu  
35 40 45

Lys Ser Trp Leu Pro Gln Asn Cys Thr Leu Val Asp Met Lys Ile Glu  
50 55 60

Phe Gly Val Asp Val Thr Thr Lys Glu Ile Val Leu Ala Asp Val Ile  
65 70 75 80

Asp Asn Asp Ser Trp Arg Leu Trp Pro Ser Gly Asp Arg Ser Gln Gln  
85 90 95

Lys Asp Lys Gln Ser Tyr Arg Asp Leu Lys Glu Val Thr Pro Glu Gly  
100 105 110

Leu Gln Met Val Lys Arg Asn Phe Glu Trp Val Ala Glu Arg Val Glu  
115 120 125

Leu Leu Leu Lys Ser Xaa Ser Gln Cys Arg Val Val Val Leu Xaa Gly  
130 135 140

Ser Thr Ser Asp Leu Gly His Cys Glu Lys Ile Gln  
145 150 155

<210> 1732

<211> 101

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (80)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (91)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (93)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (94)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1732  
Val Asp Ile Arg Lys Asp Leu Tyr Ala Asn Thr Val Leu Ser Gly Gly  
1 5 10 15  
Thr Thr Met Tyr Pro Gly Ile Ala Asp Arg Met Gln Xaa Glu Ile Thr  
20 25 30  
Ala Leu Ala Pro Ser Thr Met Lys Ile Lys Ile Ile Ala Pro Pro Glu  
35 40 45  
Arg Lys Tyr Ser Val Trp Ile Gly Gly Ser Ile Leu Ala Ser Leu Ser  
50 55 60  
Thr Phe Gln Xaa Xaa Trp Ile Thr Ser Arg Ser Thr Thr Xaa Arg Xaa  
65 70 75 80  
Pro Pro Ser Ser Thr Ala Asn Ala Ser Asn Xaa Leu Xaa Xaa Ala Tyr  
85 90 95  
His Cys Cys Met Gly  
100

<210> 1733  
<211> 101  
<212> PRT  
<213> Homo sapiens

<220>

<221> SITE  
<222> (57)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (101)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1733  
Ala Arg Arg Arg Gln Lys Gly Pro Ala Ala Pro Glu Ser Lys Pro Val  
1 5 10 15  
Pro Ala Gln Ser Arg Pro Ala Ala Val Cys Leu Leu Phe Gln His Asp  
20 25 30  
Arg Cys Arg Cys Val Leu Arg Gln Gly Leu Pro Gly Arg Trp Ser Gly  
35 40 45  
Arg Ser His Leu Lys Thr Ala Val Xaa Pro Ser Ser Gly Ser Ser Cys  
50 55 60  
Cys Cys Ser Cys Asn Ala Ser Lys Gln Ile Thr Ala Asp Lys Gln Cys  
65 70 75 80  
Lys Gly Ile Ile Asp Cys Val Val Arg Ile Pro Lys Glu Gln Asp Ser  
85 90 95  
Val Leu Leu Ala Xaa  
100

<210> 1734  
<211> 152  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (101)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (126)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (133)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (142)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (145)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (148)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1734

Ala Arg Val His Leu Glu Leu Gln Glu Ala Arg Val Met Leu Val Pro  
1 5 10 15

Leu Val Asn Val Asp Leu Leu Asp Trp Gln Gly Pro Gln Asp Leu Glu  
20 25 30

Val Glu Leu Val Pro Leu Val Pro Lys Glu Glu Arg Val Leu Leu Val  
35 40 45

Leu Leu Gly His Leu Val Leu Leu Val Leu Leu Val Cys Lys Glu Cys  
50 55 60

Leu Glu Lys Glu Glu Val Leu Glu Val Leu Val Gln Arg Val Thr Arg  
65 70 75 80

Val Asn Gln Ala Val Gln Val Leu Met Val Ser Gln Gly Lys Met Ala  
85 90 95

Gln Gly Val Leu Xaa Val Leu Leu Val Leu Leu Ala Gln Leu Ala Ser  
100 105 110

Leu Glu Ile Lys Gly Glu Gly Gly Ala Pro Gly Phe Pro Xaa Ile Ser  
115 120 125

Trp Thr Cys Gly Xaa Pro Gly Glu Arg Gly Glu Met Ala Xaa Gln Asp  
130 135 140

Xaa Trp Phe Xaa Trp Cys Ser Trp  
145 150

<210> 1735

&lt;211&gt; 26

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1735

Val Arg Ala Arg Val Pro Ser Pro Ala Ala Ala Met Gly Cys Thr Leu  
1 5 10 15

Ser Ala Glu Asp Lys Ala Ala Val Glu Arg  
20 25

&lt;210&gt; 1736

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1736

His Glu Val Ser Ala Ala Ser Leu Val Pro Ala Val Pro Gln Pro Glu  
1 5 10 15

Ala Asp Asn Leu Thr Leu Arg Tyr Arg Ser Leu Val Tyr Gln Leu Asn  
20 25 30

Phe Asp Gln Thr Leu Arg Asn Val Asp Lys Ala Gly Thr Trp Ala Pro  
35 40 45

Arg Glu Leu Val Leu Val Val Gln Val His Asn Arg Pro Glu Tyr Leu  
50 55 60

Arg Leu Leu Leu Asp Ser Leu Arg Lys Ala Gln Gly Ile Asp Asn Val  
65 70 75 80

Leu Val Ile Phe Ser His Asp Ser Gly Arg Pro Arg Ser Ile Ser  
85 90 95

&lt;210&gt; 1737

&lt;211&gt; 77

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (77)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1737

Ile Ala Ser Gly Arg Ser Arg Gly Ser Lys Leu Thr Tyr Ala Cys Met

1                      5                      10                      15  
Arg Arg His Ser Ser Ser Ile Glu Ser Pro Lys Phe Asn Ser Leu Ala  
                    20                      25                      30  
Val Val Leu Gln Arg Arg Asp Trp Glu Asn Pro Gly Val Thr Gln Leu  
                    35                      40                      45  
Asn Arg Leu Ala Ala His Pro Pro Phe Ala Ser Trp Arg Asn Ser Glu  
                    50                      55                      60  
Glu Ala Arg Thr Asp Arg Pro Ser Gln Gln Leu Arg Xaa  
65                      70                      75

<210> 1738

<211> 55

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (54)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (55)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1738

Leu Ile Xaa His Ile Gly Xaa Gly Xaa Cys Ser Thr Val Xaa Ile Pro  
1 5 10 15

Gly Ser Arg Asp Pro Ser Leu Arg Thr Ala His Ala Arg His Ser Ser  
20 25 30

Ser Ile Val Ser Pro Lys Phe Asn Ser Leu Ala Val Val Leu Gln Arg  
35 40 45

Arg Asp Trp Glu Asn Xaa Xaa  
50 55

&lt;210&gt; 1739

&lt;211&gt; 37

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (8)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (34)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (37)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1739

Ser Arg Gly Ser Lys Leu Thr Xaa Ala Cys Met Arg Arg His Ser Ser  
1 5 10 15

Ser Ile Val Ser Ala Lys Phe Asn Ser Leu Ala Val Val Leu Gln Arg  
20 25 30

Arg Xaa Trp Glu Xaa  
35

&lt;210&gt; 1740

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1740

Leu Thr Glu Thr Arg Phe Lys Thr Gly Thr Thr Leu Lys Tyr Thr Cys  
1 5 10 15

Leu Pro Gly Tyr Val Arg Ser His Ser Thr Gln Thr Leu Thr Cys Asn  
20 25 30

Ser Asp Gly Glu Trp Val Tyr Asn Thr Phe Cys Ile Tyr Lys Arg Cys  
35 40 45

Arg His Pro Gly Glu Leu Arg Asn Gly Gln Val Glu Ile Lys Thr Asp  
50 55 60

Leu Ser Phe Gly Ser Gln Ile Glu Phe Ser Cys Ser Glu Gly Phe Phe  
65 70 75 80

Leu Ile Gly Ser Thr Thr Ser Arg Cys Glu Val Gln Asp Arg Gly Val  
85 90 95

Gly Trp Ser His Pro Leu Pro Gln Cys Glu Ile Val Gln Val  
100 105 110

&lt;210&gt; 1741

&lt;211&gt; 49

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (12)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (37)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (40)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1741



Gln Val His Leu Asp Gln Val Glu Val Ala Ser Xaa Leu Thr Leu Cys  
1 5 10 15

Lys Glu Gly Cys Xaa Ala Ile Val Asp Thr Gly Thr Ser Leu Met Val  
20 25 30

Gly Pro Val Asp Xaa Val Arg Xaa Cys Arg Arg Pro Ser Gly Pro Cys  
35 40 45

Arg

<210> 1742

<211> 90

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (72)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (85)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1742

Gly Pro Ser Thr Arg Xaa Xaa Met Ile Glu Tyr Asp Pro Glu Arg Arg  
1 5 10 15

Leu Gly Ile Phe Trp Val Ser Cys Glu Ala Gly Thr Tyr Ile Arg Thr  
20 25 30

Leu Cys Val His Leu Gly Leu Leu Leu Gly Val Gly Gly Gln Met Gln  
35 40 45

Glu Leu Arg Arg Val Arg Ser Gly Val Met Ser Xaa Lys Asp His Xaa  
50 55 60

Val Thr Met His Asp Val Leu Xaa Ala Gln Trp Leu Tyr Xaa Asn His  
65 70 75 80

Lys Asp Glu Ser Xaa Leu Arg Gly Val Val  
85 90

<210> 1743

<211> 116

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (36)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (74)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (76)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (82)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (84)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (91)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (112)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (116)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1743

Ala	Gly	Ser	Val	Arg	Arg	Pro	Cys	Arg	Arg	Pro	Trp	Gly	Xaa	Arg	Ala
1				5						10				15	

Gly	Glu	Arg	Met	Xaa	Gly	Ala	Gly	Glu	Glu	Asp	Pro	Ala	Ala	Ala	Phe
			20						25					30	

Leu	Ala	Gln	Xaa	Arg	Ser	Glu	Ile	Ala	Gly	Ile	Glu	Asn	Asp	Glu	Ala
			35					40					45		

Phe	Ala	Ile	Leu	Glu	Arg	Arg	Arg	Pro	Arg	Ala	Pro	Thr	Ala	Arg	Lys
			50				55					60			

Val	Arg	Arg	Gly	Val	Pro	Met	Leu	Leu	Xaa	Gly	Xaa	Met	Xaa	Trp	Trp
			65				70				75				80

Ile	Xaa	Thr	Xaa	Lys	Leu	Met	Val	Pro	Thr	Xaa	Ile	Met	Gln	Tyr	Phe
				85							90				95

Lys Met Asp Arg Leu His Gln Asn Leu Lys Tyr Pro Lys Trp Arg Xaa  
100 105 110

Lys Met Glu Xaa  
115

<210> 1744

<211> 125

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (61)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (72)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (86)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (106)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1744

Arg Val Thr Thr Gly Thr Xaa Xaa Val Leu Val Ala Val Asp Lys Gly

1                    5                    10                    15  
Val Phe Val Leu Asn Lys Xaa Asn Lys Leu Thr Gln Ser Lys Ile Trp  
                  20                    25                    30  
Asp Val Val Glu Lys Ala Asp Ile Gly Cys Thr Pro Gly Ser Gly Lys  
                  35                    40                    45  
Asp Tyr Ala Gly Val Phe Ser Asp Ala Gly Leu Thr Xaa Thr Ser Ser  
                  50                    55                    60  
Ser Gly Gln Gln Thr Ala Gln Xaa Ala Glu Leu Gln Cys Pro Gln Pro  
                  65                    70                    75                    80  
Ala Ala Arg Arg Arg Xaa Ser Val Gln Leu Thr Glu Lys Arg Met Asp  
                  85                    90                    95  
Lys Val Gly Lys Tyr Pro Lys Glu Leu Xaa Lys Cys Cys Glu Asp Gly  
                  100                    105                    110  
Ile Arg Glu Asn Pro Met Lys Phe Ser Cys Gln Gly Gly  
                  115                    120                    125

&lt;210&gt; 1745

&lt;211&gt; 74

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1745

Gly Ala Ala Val Ser Val Lys Met Ile Glu Val Leu Thr Thr Thr Asp  
1                    5                    10                    15  
Ser Gln Lys Leu Leu His Gln Leu Asn Ala Leu Leu Glu Gln Glu Ser  
                  20                    25                    30  
Arg Cys Gln Pro Lys Val Cys Gly Leu Arg Leu Ile Glu Ser Ala His  
                  35                    40                    45  
Asp Asn Gly Leu Arg Met Thr Ala Arg Leu Arg Asp Phe Glu Val Lys  
                  50                    55                    60  
Asp Leu Leu Ser Leu Thr Gln Phe Leu Ala  
                  65                    70

&lt;210&gt; 1746

&lt;211&gt; 38

&lt;212&gt; PRT

<213> Homo sapiens

<400> 1746

Phe Phe Gly His Pro Glu Val Tyr Ile Leu Ile Leu Pro Gly Phe Gly  
1 5 10 15  
Ile Ile Ser His Ile Val Thr Tyr Tyr Ser Gly Lys Lys Glu Pro Phe  
20 25 30  
Gly Tyr Ile Gly Met Val  
35

<210> 1747

<211> 35

<212> PRT

<213> Homo sapiens

<400> 1747

Leu Val Pro Asn Ser Ala Arg Glu Thr Phe Leu Thr Ile Cys Phe Ile  
1 5 10 15  
Arg Gln Leu Ile Phe His Phe Thr Ser Lys His His Phe Gly Phe Glu  
20 25 30  
Ala Ala Ala  
35

<210> 1748

<211> 183

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (125)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (133)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (135)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (149)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (158)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (168)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (171)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (172)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (181)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1748

Ala Arg Val Glu Asn Arg Ala Gln Gln His Trp Gly Ser Gly Val Gly  
1 5 10 15

Val Lys Lys Leu Cys Glu Leu Gln Pro Glu Glu Lys Cys Cys Val Val  
20 25 30

Gly Thr Leu Phe Lys Ala Met Pro Leu Gln Pro Ser Ile Leu Arg Glu  
35 40 45

Val Ser Glu Glu His Asn Leu Leu Pro Gln Pro Pro Arg Ser Lys Tyr  
50 55 60

Ile His Pro Asp Asp Glu Leu Val Leu Glu Asp Glu Leu Gln Arg Ile  
65 70 75 80

Lys Leu Lys Gly Thr Ile Asp Val Ser Lys Leu Val Thr Gly Thr Val  
85 90 95

Leu Ala Val Phe Gly Ser Val Arg Asp Asp Gly Lys Phe Leu Val Glu  
100 105 110

Asp Tyr Cys Phe Val Asp Leu Ala Pro Gln Lys Pro Xaa Pro Pro Leu  
115 120 125

Thr Gln Leu Gly Xaa Val Xaa Gly Val Arg Pro Gly Pro Gly Trp Arg  
130 135 140

Trp Arg Arg Glu Xaa Val Gly His Pro Leu Leu Val Asp Xaa Val Thr  
145 150 155 160

Gly Gln Phe Gly Asp Glu Gly Xaa His Ala Xaa Xaa Pro Ser Phe Pro  
165 170 175

Val Ile Leu Val Xaa Thr Ser  
180

<210> 1749

<211> 106

<212> PRT

<213> Homo sapiens

<400> 1749

His Glu Ala Glu Ala Ala Pro Val Gly Arg Ala Arg Gly Cys Cys Lys  
1 5 10 15

Ala Glu Val Ala Ala Glu Ala Glu Thr Met Phe Arg Ala Ala Ala Pro  
20 25 30

Gly Gln Leu Arg Arg Ala Ala Ser Leu Leu Arg Phe Gln Ser Thr Leu  
35 40 45

Val Ile Ala Glu His Ala Asn Asp Ser Leu Ala Pro Ile Thr Leu Asn  
50 55 60

Thr Ile Thr Ala Ala Thr Arg Leu Gly Gly Glu Val Ser Cys Leu Val  
65 70 75 80

Ala Gly Thr Lys Cys Asp Lys Val Ala Gln Asp Leu Cys Lys Val Ala  
85 90 95

Gly Ile Ala Lys Ser Ser Gly Gly Ser Ala  
100 105

<210> 1750

<211> 99

<212> PRT

<213> Homo sapiens



&lt;400&gt; 1750

Arg Ser Cys Gly Val Thr Ala Gln Lys Tyr Arg Cys Glu Leu Leu Tyr  
1 5 10 15

Glu Gly Pro Pro Asp Asp Glu Ala Ala Met Gly Ile Lys Ser Cys Asp  
20 25 30

Pro Lys Gly Pro Leu Met Met Tyr Ile Ser Lys Met Val Pro Thr Ser  
35 40 45

Asp Lys Gly Arg Phe Tyr Ala Phe Gly Arg Val Phe Ser Gly Leu Val  
50 55 60

Ser Thr Gly Leu Lys Val Arg Ile Met Gly Pro Asn Tyr Thr Pro Gly  
65 70 75 80

Lys Lys Glu Asp Leu Tyr Leu Lys Pro Ile Gln Arg Thr Ile Leu Met  
85 90 95

Met Gly Arg

&lt;210&gt; 1751

&lt;211&gt; 124

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1751

Ala Ala Gln Pro Arg Leu Met Glu Pro Ile Tyr Leu Val Glu Ile Gln  
1 5 10 15

Cys Pro Glu Gln Val Val Gly Gly Ile Tyr Gly Val Leu Asn Arg Lys  
20 25 30

Arg Gly His Val Phe Glu Glu Ser Gln Val Ala Gly Thr Pro Met Phe  
35 40 45

Val Val Lys Ala Tyr Leu Pro Val Asn Glu Ser Phe Gly Phe Thr Ala  
50 55 60

Asp Leu Arg Ser Asn Thr Gly Gly Gln Ala Phe Pro Gln Cys Val Phe  
65 70 75 80

Asp His Trp Gln Ile Leu Pro Gly Asp Pro Phe Asp Asn Ser Ser Arg  
85 90 95

Pro Ser Gln Val Val Ala Glu Thr Arg Lys Arg Lys Gly Leu Lys Glu  
100 105 110

Gly Ile Pro Ala Leu Asp Asn Phe Leu Asp Lys Leu  
115 120

<210> 1752

<211> 180

<212> PRT

<213> Homo sapiens

<400> 1752

Arg Glu Gln Lys Leu Glu Leu His Arg Gly Ala Ala Ala Leu Glu Leu  
1 5 10 15

Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Ala Gln Phe Ala Arg  
20 25 30

Ser Leu Ser Ala Ala Pro Gln Leu Ser Asp Thr Ala Asp Thr Met Gly  
35 40 45

Phe Gly Asp Leu Lys Ser Pro Ala Gly Leu Gln Val Leu Asn Asp Tyr  
50 55 60

Leu Ala Asp Lys Ser Tyr Ile Glu Gly Tyr Val Pro Ser Gln Ala Asp  
65 70 75 80

Val Ala Val Phe Glu Ala Val Ser Ser Pro Pro Pro Ala Asp Leu Cys  
85 90 95

His Ala Leu Arg Trp Tyr Asn His Ile Lys Ser Tyr Glu Lys Glu Lys  
100 105 110

Ala Ser Leu Pro Gly Val Lys Lys Ala Leu Gly Lys Tyr Gly Pro Ala  
115 120 125

Asp Val Glu Asp Thr Thr Gly Ser Gly Ala Thr Asp Ser Lys Asp Asp  
130 135 140

Asp Asp Ile Asp Leu Phe Gly Ser Asp Asp Glu Glu Glu Ser Glu Glu  
145 150 155 160

Ala Lys Arg Leu Arg Glu Glu Arg Leu Ala Gln Tyr Glu Ser Lys Lys  
165 170 175

Ala Lys Lys Pro  
180

<210> 1753

<211> 126  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (2)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (4)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (5)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (6)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (11)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1753  
 Arg Xaa Lys Xaa Xaa Xaa Thr Ala Val Arg Xaa Ser Arg Leu Val Asp  
 1 5 10 15  
 Pro Pro Gly Cys Arg Asn Trp His Glu Val Ser Phe Cys Asp Leu Cys  
 20 25 30  
 Trp Asp Trp Lys Met Ser Ser Gly Asn Ala Lys Ile Gly His Pro Ala  
 35 40 45  
 Pro Asn Phe Lys Ala Thr Ala Val Met Pro Asp Gly Gln Phe Lys Asp  
 50 55 60  
 Ile Ser Leu Ser Asp Tyr Lys Gly Lys Tyr Val Val Phe Phe Phe Tyr  
 65 70 75 80  
 Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile Ile Ala Phe Ser  
 85 90 95  
 Asp Arg Ala Glu Glu Phe Lys Lys Leu Asn Cys Gln Val Ile Gly Ala  
 100 105 110

Ser Val Asp Ser His Phe Cys His Leu Ala Trp Val Asn Thr  
115 120 125

<210> 1754

<211> 62

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (24)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (43)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE  
<222> (46)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (49)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (54)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1754  
Trp Ile Pro Arg Ala Ala Gly Ile Arg His Ser Xaa Gly Gly Xaa Leu  
1 5 10 15  
Val His Pro Xaa Xaa Val Xaa Xaa Ala Ala His Cys Leu Lys Lys Asn  
20 25 30  
Ser Gln Xaa Trp Leu Gly Arg His Asn Leu Xaa Glu Pro Xaa Asp Thr  
35 40 45  
Xaa Gln Arg Val Pro Xaa Ser His Ser Phe Pro His Pro Leu  
50 55 60

<210> 1755  
<211> 42  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (6)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (19)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1755

Glu Xaa Cys Val Ser Xaa Leu Gly Cys Trp Arg Phe Asn Pro Gln Cys  
1 5 10 15  
Phe His Xaa Asn Arg Gly Pro Ile Lys Phe Asn Val Xaa Gly His Ser  
20 25 30  
Arg Pro Gly Glu Phe Arg Gly Leu Glu Xaa  
35 40

<210> 1756

<211> 174

<212> PRT

<213> Homo sapiens

<400> 1756

Arg Glu Gln Lys Leu Glu Leu His Arg Gly Ala Ala Ala Leu Glu Leu  
1 5 10 15  
Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg Ala Gly Met Gln Lys  
20 25 30  
Ala Asp Val Tyr Ser Phe Gly Ile Ile Leu Gln Glu Ile Ala Leu Arg  
35 40 45  
Ser Gly Pro Phe Tyr Leu Glu Gly Leu Asp Leu Ser Pro Lys Glu Ile  
50 55 60  
Val Gln Lys Val Arg Asn Gly Gln Arg Pro Tyr Phe Arg Pro Ser Ile  
65 70 75 80  
Asp Arg Thr Gln Leu Asn Glu Glu Leu Val Leu Leu Met Glu Arg Cys  
85 90 95  
Trp Ala Gln Asp Pro Ala Glu Arg Pro Asp Phe Gly Gln Ile Lys Gly  
100 105 110  
Phe Ile Arg Arg Phe Asn Lys Glu Gly Gly Thr Ser Ile Leu Asp Asn  
115 120 125  
Leu Leu Leu Arg Met Glu Gln Tyr Ala Asn Asn Leu Glu Lys Leu Val

130

135

140

Glu Glu Arg Thr Gln Ala Tyr Leu Glu Glu Lys Arg Lys Ala Glu Ala  
145 150 155 160

Leu Leu Tyr Gln Ile Leu Pro His Ser Val Ala Glu Gln Leu  
165 170

&lt;210&gt; 1757

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (3)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (5)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (124)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (125)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (126)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (128)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1757

Glu Thr Xaa Lys Xaa Phe Lys Asp Pro Asn Ala Pro Lys Arg Pro Pro  
1 5 10 15

Ser Ala Phe Phe Leu Phe Cys Ser Glu Tyr Arg Pro Lys Ile Lys Gly  
20 25 30

Glu His Pro Gly Leu Ser Ile Gly Asp Val Ala Lys Lys Leu Gly Glu  
35 40 45

Met Trp Asn Asn Thr Ala Ala Asp Asp Lys Gln Pro Tyr Glu Lys Lys  
50 55 60

Ala Ala Lys Leu Lys Glu Lys Tyr Glu Lys Asp Ile Ala Ala Tyr Arg  
65 70 75 80

Ala Lys Gly Lys Pro Asp Ala Ala Lys Lys Gly Val Val Lys Ala Glu  
85 90 95

Lys Ser Lys Lys Lys Lys Glu Glu Glu Glu Asp Glu Glu Asp Glu Glu  
100 105 110

Asp Glu Glu Glu Glu Glu Asp Glu Glu Asp Glu Xaa Xaa Xaa His Xaa  
115 120 125

<210> 1758

<211> 31

<212> PRT

<213> Homo sapiens

<400> 1758

Ala Arg Glu Asn Val Arg Pro Asp Tyr Leu Lys Ala Ile Trp Asn Val  
1 5 10 15

Ile Asn Trp Glu Asn Val Thr Glu Arg Tyr Met Ala Cys Lys Lys  
20 25 30

<210> 1759

<211> 64

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (5)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)



<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1759

Arg Glu Gln Lys Xaa Glu Leu His Arg Gly Ala Xaa Arg Ser Arg Thr  
1 5 10 15

Ser Gly Ser Pro Gly Leu Gln Glu Phe Gly Thr Ser Ser Ala Arg Gln  
20 25 30

Arg Xaa Lys Val Leu Ala His Phe Tyr Gly Val Lys Leu Glu Gly Lys  
35 40 45

Val Pro Met His Lys Leu Phe Leu Glu Met Leu Glu Ala Met Met Asp  
50 55 60

<210> 1760

<211> 106

<212> PRT

<213> Homo sapiens

<400> 1760

Lys Met Ala Ser Asn Lys Thr Thr Leu Gln Lys Met Gly Lys Lys Gln  
1 5 10 15

Asn Gly Lys Ser Lys Lys Val Glu Glu Ala Glu Pro Glu Glu Phe Val  
20 25 30

Val Glu Lys Val Leu Asp Arg Arg Val Val Asn Gly Lys Val Glu Tyr  
35 40 45

Phe Leu Lys Trp Lys Gly Phe Thr Asp Ala Asp Asn Thr Trp Glu Pro  
50 55 60

Glu Glu Asn Leu Asp Cys Pro Glu Leu Ile Glu Ala Phe Leu Asn Ser  
65 70 75 80

Gln Lys Ala Gly Lys Glu Lys Asp Gly Thr Lys Arg Lys Ser Leu Ser  
85 90 95

Asp Ser Gly Ser Asp Asp Ser Lys Gln Arg  
100 105

<210> 1761

<211> 69

<212> PRT

<213> Homo sapiens

<400> 1761

Ala Pro Ala Ser Pro Leu Leu Glu Met Asp Pro Asn Cys Ser Cys Ala  
1 5 10 15

Thr Gly Gly Ser Cys Thr Cys Ala Gly Ser Cys Lys Cys Lys Glu Cys  
20 25 30

Lys Cys Thr Ser Cys Lys Lys Ser Cys Cys Ser Cys Cys Pro Val Gly  
35 40 45

Cys Ala Lys Cys Ala Gln Gly Cys Val Cys Lys Gly Ala Ser Glu Lys  
50 55 60

Cys Ser Cys Cys Ala  
65

<210> 1762

<211> 41

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (13)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (36)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (37)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1762

Pro Cys Lys Gly Ser Ile Ile Thr Trp Ser Leu Ile Xaa Asp Leu Tyr  
1 5 10 15

Glu Trp Leu His Glu Gly Ser Ser Xaa Leu Leu Leu Leu Thr Ser Glu  
20 25 30

Asn Asp Leu Xaa Xaa Lys Arg Arg Ala  
35 40

&lt;210&gt; 1763

&lt;211&gt; 154

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (147)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1763

Pro Thr Arg Pro Pro Thr Arg Pro Pro Ser Pro Asn Met Ala Ala Ser  
1 5 10 15

Ala Lys Lys Lys Asn Lys Lys Gly Lys Thr Ile Ser Leu Thr Asp Phe  
20 25 30

Leu Ala Glu Asp Gly Gly Thr Gly Gly Gly Ser Thr Tyr Val Ser Lys  
35 40 45

Pro Val Ser Trp Ala Asp Glu Thr Asp Asp Leu Glu Gly Asp Val Ser  
50 55 60

Thr Thr Trp His Ser Asn Asp Asp Asp Val Tyr Arg Ala Pro Pro Ile  
65 70 75 80

Asp Arg Ser Ile Leu Pro Thr Ala Pro Arg Ala Ala Arg Glu Pro Asn  
85 90 95

Ile Asp Arg Ser Arg Leu Pro Lys Ser Pro Pro Tyr Thr Ala Phe Leu  
100 105 110

Gly Asn Leu Pro Tyr Asp Val Thr Glu Glu Ser Ile Lys Glu Phe Phe  
115 120 125

Arg Gly Leu Asn Ile Ser Ala Val Arg Leu Pro Arg Glu Pro Ser Asn  
130 135 140

Pro Glu Xaa Leu Lys Gly Leu Gly Met Leu

145

150

<210> 1764  
<211> 80  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (3)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (16)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (30)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (39)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (42)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (61)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (68)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1764

Ala Xaa Xaa Phe Pro Tyr Thr Val Asp Asn Ala Arg Ile Val Leu Xaa  
1 5 10 15

Ile Asp Asn Ala Arg Leu Ala Ala Asp Asp Phe Arg Gly Xaa Tyr Glu  
20 25 30

Thr Asp Leu Ala Met Arg Xaa Ser Val Xaa Asn Asp Ile His Gly Leu  
35 40 45

Arg Lys Val Ile Asp Asp Thr Asn Ile Thr Arg Leu Xaa Leu Glu Thr  
50 55 60

Glu Ile Glu Xaa Leu Xaa Glu Asp Leu Leu Phe Met Xaa Xaa Asn His  
65 70 75 80

<210> 1765

<211> 64

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1765

Phe Gly Thr Arg Arg Asn Val Lys Leu Ile Ala Leu Ser Ile Asp Ser  
1 5 10 15

Val Glu Asp His Leu Ala Trp Ser Lys Xaa Ile Asn Ala Tyr Asn Cys  
20 25 30

Glu Glu Pro Thr Glu Lys Leu Pro Phe Pro Ile Ile Asp Asp Arg Asn  
                   35                                  40                                  45

Arg Glu Leu Ala Ile Leu Leu Gly Met Leu Asp Pro Ala Arg Glu Gly  
           50                                  55                                  60

<210> 1766

<211> 94

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (89)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1766

Ile Arg His Glu Gln Ala Ala Ser Ser Pro Glu Pro Thr Gly Cys Leu  
       1                                  5                                  10                                  15

Leu Ser Gln Arg Arg Pro Leu Ile Thr Val Ala Met Pro Gly Gly Leu  
                   20                                  25                                  30

Leu Leu Gly Asp Val Ala Pro Asn Phe Glu Ala Asn Thr Thr Val Gly  
           35                                  40                                  45

Arg Ile Arg Phe His Asp Phe Leu Gly Asp Ser Trp Gly Ile Leu Phe  
       50                                  55                                  60

Ser His Pro Arg Asp Phe Thr Pro Val Cys Thr Thr Glu Leu Gly Arg  
       65                                  70                                  75                                  80

Ala Ala Lys Trp His Gln Asn Leu Xaa Arg Gly Met Leu Ser  
                   85                                  90

<210> 1767

<211> 51

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1767

Gly Val Ser Cys Thr Xaa Pro Val Leu Gln Val Gln Arg Val Gln Met  
1 5 10 15

His Leu Leu Gln Glu Glu Leu Leu Leu Leu Leu Pro Cys Gly Cys Ala  
20 25 30

Lys Cys Ala Gln Gly Cys Ile Cys Lys Gly Ala Ser Glu Lys Cys Ser  
35 40 45

Cys Cys Ala  
50

&lt;210&gt; 1768

&lt;211&gt; 143

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (4)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (8)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1768

Gln Arg Thr Xaa Gly Asn Xaa Xaa Ala Cys Arg Tyr Arg Thr Gly Ile  
1 5 10 15

Pro Gly Ser Thr His Ala Ser Gly Arg Gly His Gly Leu Ile Ala Val  
20 25 30

Cys Ala Leu His Ser Val Pro His Ser Pro Pro Thr Thr Cys Leu Ala  
35 40 45

Glu Arg Thr Pro Cys Arg Arg Pro Ala Glu Met Leu Arg Leu Pro Thr  
50 55 60

Val Phe Arg Gln Met Arg Pro Val Ser Arg Val Leu Ala Pro His Leu  
65 70 75 80

Thr Arg Ala Tyr Ala Lys Asp Val Lys Phe Gly Ala Asp Ala Arg Ala  
85 90 95

Leu Met Leu Gln Gly Val Asp Leu Leu Ala Asp Ala Val Ala Val Thr  
100 105 110

Met Gly Pro Lys Gly Arg Thr Val Ile Ile Glu Gln Ser Trp Gly Ser  
115 120 125

Pro Lys Val Thr Arg Asp Gly Val Thr Val Ala Lys Ser Leu Thr  
130 135 140

<210> 1769

<211> 168

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (115)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (121)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (131)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (163)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1769

Asn Ser Ala Arg Ala Cys Xaa Ala Glu Arg Thr Xaa Cys Arg Arg Pro  
1 5 10 15

Ala Glu Met Leu Arg Leu Pro Thr Val Phe Arg Gln Met Arg Pro Val  
20 25 30

Ser Arg Val Leu Ala Pro His Leu Xaa Arg Ala Tyr Ala Lys Xaa Val  
35 40 45

Lys Phe Gly Ala Asp Ala Arg Ala Leu Met Leu Gln Gly Val Asp Leu  
50 55 60

Leu Ala Asp Ala Val Ala Val Thr Met Gly Pro Lys Gly Arg Thr Val  
65 70 75 80

Ile Ile Glu Gln Ser Trp Gly Ser Pro Lys Val Thr Lys Asp Gly Val  
85 90 95

Thr Val Ala Lys Ser Ile Asp Leu Lys Asp Lys Tyr Lys Asn Ile Gly  
100 105 110

Ala Lys Xaa Val Gln Asp Val Ala Xaa Asn Thr Ile Glu Glu Leu Gly  
115 120 125

Met Ala Xaa Pro Cys Tyr Cys Tyr Gly Thr Ser Ile Ala Lys Glu Gly  
130 135 140

Phe Glu Lys Val Ser Lys Val Leu Ile His Gly Asn Gln Glu Arg Cys  
145 150 155 160

Asp Val Xaa Val Asp Ala Val Leu  
165

<210> 1770

<211> 148

<212> PRT

<213> Homo sapiens

<400> 1770

Gly Ala Glu Ala Phe Gly Ala Ala Lys Met Pro Asp Tyr Leu Gly Ala  
1 5 10 15  
Asp Gln Arg Lys Thr Lys Glu Asp Glu Lys Asp Asp Lys Pro Ile Arg  
20 25 30  
Ala Leu Asp Glu Gly Asp Ile Ala Leu Leu Lys Thr Tyr Gly Gln Ser  
35 40 45  
Thr Tyr Ser Arg Gln Ile Lys Gln Val Glu Asp Asp Ile Gln Gln Leu  
50 55 60  
Leu Lys Lys Ile Asn Glu Leu Thr Gly Ile Lys Glu Ser Asp Thr Gly  
65 70 75 80  
Leu Ala Pro Pro Ala Leu Trp Asp Leu Ala Ala Asp Lys Gln Thr Leu  
85 90 95  
Gln Ser Glu Gln Pro Leu Gln Val Ala Arg Cys Thr Lys Ile Ile Asn  
100 105 110  
Ala Asp Ser Glu Asp Pro Lys Tyr Ile Ile Asn Val Lys Gln Phe Ala  
115 120 125  
Lys Phe Val Val Asp Leu Ser Asp Gln Val Ala Pro Thr Asp Ile Glu  
130 135 140  
Glu Gly Met Arg  
145

&lt;210&gt; 1771

&lt;211&gt; 45

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (38)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1771

Gly Arg Met Ala Glu Ser Ser Asp Lys Leu Tyr Arg Val Glu Tyr Ala  
1 5 10 15  
Lys Ser Gly Arg Ala Ser Cys Lys Lys Cys Ser Glu Thr Ser Pro Arg  
20 25 30  
Thr Arg Ser Gly Trp Xaa Ser Trp Cys Ile Ala His Val  
35 40 45

<210> 1772  
<211> 81  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (5)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (50)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (65)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (74)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (76)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1772  
Leu Glu Ala Glu Xaa Ser Leu Ser Arg Gly Asp Trp Tyr Lys Thr Lys  
1 5 10 15  
Glu Ile Leu Leu Lys Gly Pro Asp Trp Ile Leu Gly Glu Ile Lys Thr  
20 25 30  
Ser Gly Leu Arg Gly Arg Gly Gly Ala Gly Phe Pro Asn Gly Leu Lys  
35 40 45  
Trp Xaa Phe Met Ile Arg Pro Gln Met Ala Gly Pro Ser Ile Trp Trp  
50 55 60  
Xaa Asn Ala Asn Glu Gly Gly Ala Gly Xaa Leu Xaa Glu Pro Gly Gly  
65 70 75 80

Phe

<210> 1773  
 <211> 145  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (112)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (118)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1773  
 Cys Glu Lys Thr Thr Glu Gly Ala Leu Pro Ser Ser Thr Ala Ala Ala  
 1 5 10 15

Ser Phe Phe Cys Arg Ser Trp Cys Cys Leu Cys Ala Arg Leu Val Arg  
 20 25 30

Thr Trp Tyr Leu Phe Cys Glu Ala Ala Ala Glu Glu Thr Pro Ala Leu  
 35 40 45

Ala Met Ala Asp Glu Lys Pro Lys Glu Gly Val Lys Thr Glu Asn Asn  
 50 55 60

Asp His Ile Asn Leu Lys Val Ala Gly Gln Asp Gly Ser Val Val Gln  
 65 70 75 80

Phe Lys Ile Lys Arg His Thr Pro Leu Ser Lys Leu Met Lys Ala Tyr  
 85 90 95

Cys Glu Arg Gln Gly Leu Ser Met Lys Gln Ile Arg Phe Arg Phe Xaa  
 100 105 110

Gly Gln Pro Ile Asn Xaa Thr Asp Thr Pro Ala Gln Leu Gly Asn Gly  
 115 120 125

Arg Met Lys Ile Pro Met Met Cys Ser Lys Gln Gln Thr Gly Gly Val  
 130 135 140

Tyr  
 145

<210> 1774  
<211> 122  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (47)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (107)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (110)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (112)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (115)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1774  
His Ala Ser Ala His Ala Ser Ala Pro Leu Ala Met Ala Ser Leu Thr  
1 5 10 15  
Val Lys Ala Tyr Leu Leu Gly Lys Glu Asp Ala Ala Arg Glu Ile Arg  
20 25 30  
Arg Phe Ser Phe Cys Cys Ser Pro Glu Pro Glu Ala Gly Ser Xaa Ala  
35 40 45  
Ala Ala Gly Pro Gly Pro Leu Arg Ala Ala Ala Glu Pro Gly Gly Arg  
50 55 60  
Pro Val Pro Arg Ala Ala Ala Trp Arg Leu Ser Arg Arg Thr Thr Ala  
65 70 75 80  
Ile Glu Asp Gly Asp Leu Leu Leu Phe Ser Ile Asp Glu Asp Leu Thr  
85 90 95  
Trp Ala Cys Ser Thr Leu Lys Met Asn Leu Xaa Asp Phe Xaa Phe Xaa  
100 105 110

Glu Lys Xaa Phe Pro Ala Gly Thr Arg Gln  
115 120

<210> 1775  
<211> 105  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (58)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (72)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (86)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (90)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (96)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (100)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (104)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1775  
Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg  
1 5 10 15

Asn Glu Leu Arg Val Ala Pro Glu Glu His Pro Thr Leu Leu Thr Glu

20 25 30

Ala Pro Leu Asn Pro Lys Ala Asn Arg Glu Lys Met Thr Gln Ile Met  
35 40 45

Phe Glu Thr Phe Asn Val Gln Ala Met Xaa Leu Ala Ile Gln Ala Val  
50 55 60

Leu Ser Leu Tyr Ala Ser Gly Xaa Thr Met Glu Ser Cys Trp Thr Leu  
65 70 75 80

Glu Met Val Ser Pro Xaa Met Ser Gln Xaa Met Arg Ala Met Leu Xaa  
85 90 95

Pro Met Gln Xaa Met Gly Leu Xaa Leu  
100 105

<210> 1776

<211> 106

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (48)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (63)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (87)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (104)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1776

Pro Leu Arg Gly Asn Val Val Pro Ser Pro Leu Pro Thr Arg Xaa Thr  
1 5 10 15

Arg Thr Phe Ser Ala Thr Val Arg Ala Ser Xaa Gly Pro Val Tyr Lys  
20 25 30

Gly Val Cys Lys Cys Phe Xaa Arg Ser Lys Gly His Gly Phe Xaa Xaa  
35 40 45

Pro Ala Asp Gly Gly Pro Asp Ile Phe Leu His Ile Phe Glu Xaa Xaa  
50 55 60

Arg Gly Ser Met Xaa Xaa Trp Lys Ala Thr Arg Ser Xaa Ile Lys Cys  
65 70 75 80

Ala Ser Ile Pro Pro Lys Xaa Glu Lys Leu Gln Ala Val Gly Val Arg  
85 90 95



His Gln Ser Pro Gly Thr Arg Xaa Gln Val  
100 105

<210> 1777  
<211> 90  
<212> PRT  
<213> Homo sapiens

<400> 1777  
Gly Leu Asp Met Phe Ser Phe Val Asp Leu Arg Leu Leu Leu Leu Leu  
1 5 10 15  
Ala Ala Thr Ala Leu Leu Thr His Gly Gln Glu Glu Gly Gln Val Glu  
20 25 30  
Gly Gln Asp Glu Asp Ile Pro Pro Ile Thr Cys Val Gln Asn Gly Leu  
35 40 45  
Arg Tyr His Asp Arg Asp Val Trp Lys Pro Glu Pro Cys Arg Ile Cys  
50 55 60  
Val Cys Asp Asn Gly Lys Val Leu Cys Asp Asp Val Ile Cys Asp Glu  
65 70 75 80  
Thr Lys Asn Cys Pro Gly Ala Glu Val Pro  
85 90

<210> 1778  
<211> 64  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (3)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (20)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (23)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (45)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (62)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1778

Ile	Ile	Xaa	Asn	Thr	Glu	Asn	Leu	Val	Arg	Glu	Leu	Leu	Thr	Val	Pro
1				5					10					15	

Asp	Asn	Tyr	Xaa	Val	Ile	Xaa	Leu	Ala	Xaa	Lys	Trp	Val	Arg	Pro	Ile
			20					25					30		

Xaa	Cys	Cys	Pro	Leu	Xaa	Leu	Ile	Gly	Leu	Lys	Ala	Xaa	Lys	Cys	Ala
	35						40					45			

Asp	Tyr	Val	Val	Thr	Gly	Thr	Trp	Ser	Ala	Lys	Gly	Ala	Xaa	Lys	Thr
	50					55						60			

<210> 1779

<211> 60

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1779

Trp Leu Ser Ser Thr Ala Met Tyr Ser Ala Ala Gly Arg Asp Leu Gly  
1 5 10 15

Met Glu Pro His Arg Ala Ala Gly Pro Leu Pro Ala Ala Asn Phe Arg  
20 25 30

Pro Asp Val Phe Asn Gly Gly Asp Tyr Thr Gly Gln Leu Leu Glu Lys  
35 40 45

Ile Leu Pro Ile Val Ala Ser Glu Tyr Ser Ile Xaa  
50 55 60

<210> 1780

<211> 60

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (40)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (59)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1780

Thr Leu Xaa Leu His Lys Ile Gln Lys Leu Arg Trp Ala Trp Cys Cys  
1 5 10 15

Xaa Pro Ile Val Pro Leu Leu Val Gly Leu Arg Gln Glu Asp His Leu  
20 25 30

Ser Pro Gly Gly Arg Gly Tyr Xaa Ala Pro Arg Val His Tyr Cys Thr

35

40

45

Pro Ala Arg Ala Arg Arg Ala Arg Pro Cys Xaa Lys  
50 55 60

&lt;210&gt; 1781

&lt;211&gt; 67

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (10)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (16)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (23)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (34)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (38)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (39)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (41)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (57)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1781

Gly Cys Arg Val Asn Gln Ala Ala Val Xaa Trp His Glu Gln Val Xaa  
1 5 10 15

Trp Leu Ser Glu Xaa Arg Xaa Gly Glu Thr Val Tyr Tyr Arg Leu Leu  
20 25 30

Pro Xaa Lys Asn Val Xaa Xaa Arg Xaa Ala Arg Gly Leu Val Phe Lys  
35 40 45

Glu Cys Arg Gln Ser Ala Ser Met Xaa Arg Val Leu Ala Val Tyr Gly  
50 55 60

Val Lys Arg  
65

<210> 1782

<211> 152

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (127)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (148)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (149)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (150)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (151)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1782

Arg Pro Thr Arg Pro Leu Thr Ser Thr Xaa Ala Val Gly Lys Asn Lys  
1 5 10 15

Arg Leu Thr Lys Gly Gly Lys Lys Gly Ala Lys Lys Lys Val Val Asp  
20 25 30

Pro Phe Ser Lys Lys Asp Trp Tyr Asp Val Lys Ala Pro Ala Met Phe  
35 40 45

Asn Ile Arg Asn Ile Gly Lys Thr Leu Val Thr Arg Thr Gln Gly Thr  
50 55 60

Lys Ile Ala Ser Asp Gly Leu Lys Gly Arg Val Phe Glu Val Ser Leu  
65 70 75 80

Ala Asp Leu Gln Asn Asp Glu Val Ala Phe Arg Lys Phe Lys Leu Ile  
85 90 95

Thr Glu Asp Val Gln Gly Lys Asn Cys Leu Thr Asn Phe His Gly Met  
100 105 110

Asp Leu Thr Arg Asp Lys Met Cys Ser Met Val Lys Lys Trp Xaa Thr  
115 120 125

Met Ile Glu Ala His Val Asp Val Lys Thr Thr Asp Gly Tyr Leu Leu  
130 135 140

Arg Cys Ser Xaa Xaa Xaa Xaa Leu  
145 150

<210> 1783

<211> 127

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (82)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1783

His Arg Val Arg Gln Arg Xaa Pro Thr Leu Ala Arg Ala Met Ala Ser  
1 5 10 15

Val Ser Glu Leu Ala Cys Ile Tyr Ser Ala Leu Ile Leu His Asp Asp  
20 25 30

Glu Val Thr Val Thr Glu Asp Lys Ile Asn Ala Leu Ile Lys Ala Ala  
35 40 45

Gly Val Asn Val Glu Pro Phe Trp Pro Gly Leu Phe Ala Lys Ala Leu  
50 55 60

Ala Asn Val Asn Ile Gly Ser Leu Ile Cys Asn Val Gly Ala Gly Gly  
65 70 75 80

Pro Xaa Pro Ala Ala Gly Ala Ala Pro Ala Gly Gly Pro Ala Pro Ser  
85 90 95

Thr Ala Ala Ala Pro Ala Glu Glu Lys Lys Val Glu Ala Lys Lys Glu  
100 105 110

Glu Ser Glu Glu Ser Tyr Asp Asp Met Gly Phe Gly Leu Phe Asp  
115 120 125

<210> 1784

<211> 101

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (16)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (67)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (68)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1784

Gly Ser Ala Ala Gly Ser Thr Ala Xaa Ser Leu Leu Ser Thr Gly Xaa  
1 5 10 15  
Pro Arg Pro Thr Arg Pro Asp Lys Ala Arg Arg Leu Gly Tyr Lys Ala  
20 25 30  
Lys Gln Gly Tyr Val Ile Tyr Arg Ile Arg Val Arg Arg Gly Gly Arg  
35 40 45  
Lys Arg Pro Val Pro Lys Gly Ala Thr Tyr Gly Lys Pro Val His His  
50 55 60  
Gly Val Xaa Xaa Leu Lys Phe Ala Arg Ser Leu Gln Ser Val Ala Glu  
65 70 75 80  
Glu Arg Ala Gly Arg His Cys Gly Ala Leu Arg Val Leu Asn Ser Tyr  
85 90 95  
Trp Val Gly Glu Asp  
100

&lt;210&gt; 1785

&lt;211&gt; 123

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1785

Ala Lys Met Gly Ala Tyr Lys Tyr Ile Gln Glu Leu Trp Arg Lys Lys  
1 5 10 15  
Gln Ser Asp Val Met Arg Phe Leu Leu Arg Val Arg Cys Trp Gln Tyr  
20 25 30  
Arg Gln Leu Ser Ala Leu His Arg Ala Pro Arg Pro Thr Arg Pro Asp  
35 40 45  
Lys Ala Arg Arg Leu Gly Tyr Lys Ala Lys Gln Gly Tyr Val Ile Tyr  
50 55 60  
Arg Ile Arg Val Arg Arg Gly Gly Arg Lys Arg Pro Val Pro Lys Gly  
65 70 75 80



Ala Ile Thr Ala Ser Leu Ser Ile Met Val Leu Thr Ala Lys Val Cys  
85 90 95

Ser Lys Pro Ser Val Arg Cys Arg Gly Ala Ser Trp Thr Pro Leu Trp  
100 105 110

Gly Ser Glu Ser Pro Glu Phe Leu Leu Gly Trp  
115 120

<210> 1786

<211> 137

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (5)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (11)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (57)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1786

Ile Xaa Ile Lys Xaa Thr Xaa Thr Xaa Gly Xaa Lys Leu Xaa Leu His  
1 5 10 15

Arg Gly Gly Gly Arg Ser Ser Thr Ser Gly Ser Pro Gly Ser Ala Gly  
20 25 30

Ile Arg His Glu Arg Xaa Lys Arg Asp Asp Glu Gly Thr Ser Ser Phe  
35 40 45

Gly Lys Arg Arg Asn Lys Thr His Xaa Leu Cys Arg Arg Cys Gly Ser  
50 55 60

Lys Ala Tyr His Leu Gln Lys Ser Thr Cys Gly Lys Cys Gly Tyr Pro  
65 70 75 80

Ala Lys Arg Lys Arg Lys Tyr Asn Trp Ser Ala Lys Ala Lys Arg Arg  
85 90 95

Asn Thr Thr Gly Thr Gly Arg Met Arg His Leu Lys Ile Val Tyr Arg  
100 105 110

Arg Phe Arg His Gly Phe Arg Glu Gly Thr Thr Pro Lys Pro Lys Arg  
115 120 125

Ala Ala Val Ala Ala Ser Ser Ser Ser  
130 135

&lt;210&gt; 1787

&lt;211&gt; 128

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (7)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1787

Leu Xaa Leu Thr Lys Gly Xaa Lys Ser Trp Gly Ser Thr Ala Val Thr  
 1 5 10 15  
 Thr Ala Leu Glu Leu Val Asp Pro Pro Gly Cys Arg Asn Ser Ala Arg  
 20 25 30  
 Gly Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly Ile Val Gly  
 35 40 45  
 Lys Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met Val Lys Lys  
 50 55 60  
 Ile Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe Cys Gly Lys  
 65 70 75 80  
 Thr Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys Gly Ser Cys  
 85 90 95  
 Met Lys Thr Val Ala Gly Gly Ala Trp Thr Tyr Asn Thr Thr Ser Ala  
 100 105 110  
 Val Thr Val Lys Ser Ala Ile Arg Arg Leu Lys Glu Leu Lys Asp Gln  
 115 120 125

&lt;210&gt; 1788

&lt;211&gt; 95

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1788

Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly Ile Val Gly Lys  
 1 5 10 15  
 Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met Val Lys Lys Ile  
 20 25 30  
 Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe Cys Gly Lys Thr  
 35 40 45  
 Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys Gly Ser Cys Met  
 50 55 60  
 Lys Thr Val Ala Gly Gly Ala Trp Thr Tyr Asn Thr Thr Ser Ala Val  
 65 70 75 80  
 Thr Val Lys Ser Ala Ile Arg Arg Leu Lys Glu Leu Lys Asp Gln

85

90

95

<210> 1789  
<211> 113  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (72)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (75)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (93)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (104)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (105)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (111)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1789  
Gln Ser Leu Gly Arg Gly Asp Met Ala Lys Arg Thr Lys Lys Val Gly  
1 5 10 15

Ile Val Gly Lys Tyr Gly Thr Arg Tyr Gly Ala Ser Leu Arg Lys Met  
20 25 30

Val Lys Lys Ile Glu Ile Ser Gln His Ala Lys Tyr Thr Cys Ser Phe  
35 40 45

Cys Gly Lys Thr Lys Met Lys Arg Arg Ala Val Gly Ile Trp His Cys  
50 55 60

Gly Ser Cys Met Lys Thr Val Xaa Gly Gly Xaa Trp Thr Tyr Asn Thr  
65 70 75 80  
Thr Ser Ala Val Thr Val Lys Val Arg His Gln Lys Xaa Glu Gly Val  
85 90 95  
Glu Arg Pro Leu Asp Val Pro Xaa Xaa Phe Gly Thr Ser Leu Xaa Tyr  
100 105 110

Asn

<210> 1790  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 1790  
Ile Pro Cys Leu Lys Pro Lys Asn Phe Gly Ile Gly Gln Asp Ile Gln  
1 5 10 15

Pro Lys Arg Asp Ser Pro Ala Leu  
20

<210> 1791  
<211> 70  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (43)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (48)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (49)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1791

Arg Arg Cys Ala Leu Arg Ala Val Asp Phe Ala Glu Arg Asn Gly Tyr  
1 5 10 15

Ile Lys Gly Ile Val Lys Asp Ile Ile His Asp Pro Gly Arg Gly Xaa  
20 25 30

Pro Leu Ala Lys Val Val Phe Arg Asp Pro Xaa Arg Leu Arg Ser Xaa  
35 40 45

Xaa Glu Leu Phe Ile Ala Ala Glu Gly Ile His Thr Gly Gln Phe Val  
50 55 60

Tyr Cys Arg Lys Lys Ala  
65 70

<210> 1792

<211> 110

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (4)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (28)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (58)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (82)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (87)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (93)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (95)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (96)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (100)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (105)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1792  
Gly Arg Val Xaa Arg Pro Thr Arg Pro Xaa Glu Xaa Arg Gly Gly Gly  
1 5 10 15

Gly Leu Gly Ala Phe Lys Ile Gln Leu His Xaa Xaa Ala Thr Gly Met  
20 25 30

Ala Glu Glu Gly Ile Ala Ala Gly Gly Val Met Asp Val Asn Thr Ala  
35 40 45

Leu Gln Glu Val Leu Lys Thr Ala Leu Xaa His Asp Gly Leu Ala Arg





&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1794

Ile Ala Ile Val Asn Asp Thr Val Thr Ile Arg Thr Arg Lys Phe Met  
1 5 10 15

Thr Asn Arg Leu Leu Gln Arg Lys Gln Met Val Ile Asp Val Leu His  
20 25 30

Pro Gly Lys Ala Thr Val Pro Lys Thr Glu Ile Arg Glu Lys Leu Ala  
35 40 45

Lys Met Tyr Lys Thr Thr Pro Asp Val Ile Phe Val Phe Gly Phe Arg  
50 55 60

Thr His Phe Gly Gly Gly Lys Thr Thr Gly Phe Gly Met Ile Tyr Asp  
65 70 75 80

Ser Leu Asp Tyr Ala Lys Lys Asn Glu Pro Lys His Arg Leu Ala Arg  
85 90 95

His Gly Leu Tyr Glu Lys Lys Lys Thr  
100 105

&lt;210&gt; 1795

&lt;211&gt; 92

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1795

Val Asp Pro Arg Val Arg Tyr Asp Thr Lys Gly Arg Phe Ala Val His  
1 5 10 15

Arg Ile Thr Pro Glu Glu Ala Lys Tyr Lys Leu Cys Lys Val Arg Lys  
20 25 30

Ile Phe Val Gly Thr Lys Gly Ile Pro His Leu Val Thr His Asp Ala  
35 40 45

Arg Thr Ile Arg Tyr Pro Asp Pro Leu Ile Lys Val Asn Asp Thr Ile  
50 55 60

Gln Ile Asp Leu Glu Thr Gly Lys Ile Thr Asp Phe Ile Lys Phe Asp  
65 70 75 80

Thr Gly Asn Leu Cys Met Val Thr Gly Gly Ala Asn  
85 90

<210> 1796  
 <211> 130  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (90)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (101)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (113)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1796

Gly Ile Phe Arg Asp Asn Trp His Lys Arg Arg Lys Thr Gly Gly Lys  
 1 5 10 15

Arg Lys Pro Tyr His Lys Lys Arg Lys Tyr Glu Leu Gly Arg Pro Ala  
 20 25 30

Ala Asn Thr Lys Ile Gly Pro Arg Arg Ile His Thr Val Arg Val Arg  
 35 40 45

Gly Gly Asn Lys Lys Tyr Arg Ala Leu Arg Leu Asp Val Gly Asn Phe  
 50 55 60

Ser Trp Gly Ser Glu Cys Cys Thr Arg Lys Thr Arg Ile Ile Asp Val  
 65 70 75 80

Val Tyr Asn Ala Ser Asn Asn Glu Leu Xaa Arg Thr Lys Thr Leu Val  
 85 90 95

Lys Asn Cys Ile Xaa Leu Ile Asp Ser Thr Pro Tyr Arg Gln Trp Tyr  
 100 105 110

Xaa Val Pro Leu Cys Ala Ala Pro Gly Pro Gln Glu Gly Ser Gln Ala  
 115 120 125

Asp Ser  
 130

<210> 1797  
<211> 106  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (47)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (59)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (80)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (87)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (92)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (98)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (99)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (102)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (103)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (106)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1797

Pro Arg Ala Gly Gly Cys Gly Gly Ser Gly Arg Val Thr Ala Cys Leu  
1 5 10 15

Cys Ala Cys Ala Thr Leu Val Trp Pro Pro Arg Phe Gln Glu Val Leu  
20 25 30

Leu Val Leu Ser Gly Leu Val His Ala Arg Gly Cys Thr Tyr Xaa Gln  
35 40 45

Leu Trp Ser Arg Ser His Pro Phe Cys Cys Xaa Arg Gly Pro Leu Ala  
50 55 60

Met Ala Gly Ile Leu Phe Glu Asp Ile Phe Asp Val Lys Asp Ile Xaa  
65 70 75 80

Pro Glu Gly Lys Lys Phe Xaa Arg Val Ser Arg Xaa His Cys Glu Ser  
85 90 95

Glu Xaa Xaa Arg Trp Xaa Xaa Thr Lys Xaa  
100 105

<210> 1798

<211> 140

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (13)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (15)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (16)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1798

Lys Xaa Xaa Glu Pro Xaa Xaa Arg Ile Glu Arg Ala Xaa Xaa Xaa Xaa  
1 5 10 15

Leu Lys Lys Ser Gly Lys Leu Lys Val Pro Glu Trp Val Asp Thr Val  
20 25 30

Lys Leu Ala Lys His Lys Glu Leu Ala Pro Tyr Asp Glu Asn Trp Phe  
35 40 45

Tyr Thr Arg Ala Ala Ser Thr Ala Arg His Leu Tyr Leu Arg Gly Gly  
50 55 60

Ala Gly Val Gly Ser Met Thr Lys Ile Tyr Gly Gly Arg Gln Arg Asn  
65 70 75 80

Gly Val Met Pro Ser His Phe Ser Arg Gly Ser Lys Ser Val Ala Arg  
85 90 95

Arg Val Leu Gln Ala Leu Glu Gly Leu Lys Met Val Glu Lys Asp Gln  
100 105 110

Asp Gly Gly Arg Lys Leu Thr Pro Gln Gly Gln Arg Asp Leu Asp Arg  
115 120 125

Ile Ala Gly Gln Val Ala Ala Ser Asn Lys Lys His  
130 135 140

<210> 1799  
<211> 126  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (10)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (126)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1799  
Val Asp Pro Arg Val Arg Lys Thr Val Xaa Glu Leu Asp Lys Gly Met  
1 5 10 15  
Gln Glu Arg Thr Gly Ala Ala Thr Ala Arg Arg Glu Ser Leu Pro Gln  
20 25 30  
Ala Asn Asn Pro Glu Gln Leu Cys Lys Gln Arg Cys Ile Asn Glu Ala  
35 40 45  
Ser Trp Thr Met Lys Leu Val Leu Ser Cys Val Pro Glu Pro Thr Val  
50 55 60  
Val Met Ala Ala Arg Ala Leu Cys Met Leu Gly Leu Val Leu Ala Leu  
65 70 75 80  
Leu Ser Ser Ser Ser Ala Arg Glu Leu Arg Gly Ala Cys Leu Pro Asn  
85 90 95  
Gln Cys Ala Val Pro Ala Lys Asp Arg Val Glu Leu Arg Leu Thr Pro  
100 105 110  
Met Phe Thr Pro Lys Asp Cys Lys Asn Arg Gly Cys Cys Xaa  
115 120 125

<210> 1800  
<211> 140  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE

<222> (123)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (126)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (133)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1800

Gly Tyr Leu His Ser Leu Asn Ile Val Tyr Arg Asp Leu Lys Pro Glu  
1 5 10 15

Asn Ile Leu Leu Asp Ser Gln Gly His Ile Val Leu Thr Asp Phe Gly  
20 25 30

Leu Cys Lys Glu Asn Ile Glu His Asn Ser Thr Thr Ser Thr Phe Cys  
35 40 45

Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val Leu His Lys Gln Pro Tyr  
50 55 60

Asp Arg Thr Val Asp Trp Trp Cys Leu Gly Ala Phe Leu Tyr Glu Met  
65 70 75 80

Leu Tyr Gly Leu Pro Pro Phe Tyr Ser Arg Asn Thr Ala Glu Met Tyr  
85 90 95

Asp Asn Ile Leu Asn Lys Pro Leu Gln Leu Lys Pro Asn Ile Thr Asn  
100 105 110

Ser Ala Arg His Leu Leu Glu Gly Leu Leu Xaa Lys Asp Xaa Thr Lys  
115 120 125

Arg Leu Gly Gly Xaa Gly Asp Phe Met Glu Ile Lys  
130 135 140

<210> 1801

<211> 92

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (77)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (81)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (92)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1801

Ala Thr Met Pro Gln Tyr Gln Thr Trp Glu Glu Phe Ser Arg Ala Ala  
1 5 10 15

Glu Lys Leu Tyr Leu Ala Asp Pro Met Lys Ala Arg Val Val Leu Lys  
20 25 30

Tyr Arg His Ser Asp Gly Asn Leu Cys Val Lys Val Thr Asp Asp Leu  
35 40 45

Val Cys Leu Val Tyr Lys Thr Asp Gln Ala Gln Asp Val Lys Lys Ile  
50 55 60

Glu Lys Phe His Ser Gln Leu Met Arg Leu Ile Val Xaa Gln Gly Ala  
65 70 75 80

Xaa Asn Leu Pro Trp Glu Leu Ser Glu Trp Phe Xaa  
85 90

<210> 1802

<211> 176

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (4)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (19)



<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (96)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (115)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (134)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (140)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (163)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (166)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1802

Arg Gly Ala Xaa Arg Ser Arg Thr Ser Gly Ser Pro Gly Xaa Ala Gly

1

5

10

15

Ile Arg Xaa Arg Xaa Val Ser Gln Lys Thr Val Ile Ile Lys Glu Glu  
                   20                  25                  30  
 Glu Glu Asp Thr Ala Glu Lys Pro Gly Lys Glu Glu Asp Val Val Thr  
                   35                  40                  45  
 Pro Lys Pro Xaa Lys Arg Lys Arg Asp Gln Ala Glu Glu Glu Pro Asn  
                   50                  55                  60  
 Arg Ile Pro Ser Arg Xaa Leu Arg Arg Thr Lys Leu Asn Gln Glu Ser  
                   65                  70                  75                  80  
 Thr Ala Pro Lys Val Leu Phe Thr Gly Val Val Asp Ala Arg Gly Xaa  
                   85                  90                  95  
 Arg Ala Val Leu Ala Trp Gly Glu Ile Trp Leu Val His Gly Gln Ser  
                   100                  105                  110  
 Phe Pro Xaa Val His Gly Ser His Pro Pro Asp Ile Gln Phe Leu Cys  
                   115                  120                  125  
 Gly Pro Gly Ala Gly Xaa Ser Pro Phe Cys Ser Xaa Asp Gly Trp His  
                   130                  135                  140  
 His Ser Arg Gln Ala Gly Phe Leu Leu Thr Pro Asp Glu Tyr Val Val  
                   145                  150                  155                  160  
 Asn Asp Xaa Ala Pro Xaa Glu Glu Phe Gly Phe Thr Phe Lys Thr His  
                   165                  170                  175

<210> 1803  
 <211> 39  
 <212> PRT  
 <213> Homo sapiens

<400> 1803  
 Gly Ser Leu Ala Val Thr Lys Asn Asp Gly His Tyr Arg Gly Asp Pro  
   1                  5                  10                  15  
 Asn Trp Phe Met Lys Tyr Val Ala Pro Arg Glu Leu Gly Ser Pro His  
                   20                  25                  30  
 Gly Val Gly Gly Gly Leu Phe  
                   35

<210> 1804

<211> 42

<212> PRT

<213> Homo sapiens

<400> 1804

Gly Ser Leu Leu Ser Pro Asp Met Ala Asn Lys Gly Pro Ser Tyr Gly  
1 5 10 15

Met Ser Arg Glu Val Gln Ser Lys Ile Glu Lys Lys Tyr Asp Glu Glu  
20 25 30

Leu Gly Gly Ala Ala Gly Gly Val Gly Pro  
35 40

<210> 1805

<211> 165

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (110)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (114)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (117)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<222> (130)

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<222> (163)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1805

Phe Gly Thr Arg Leu Asp Gln Ile Arg Gln Arg Glu Ser Asp Ile Thr  
1 5 10 15

Lys Glu Arg Ile Gln Lys Ile Leu Ala Thr Gly Ala Asn Val Ile Leu  
20 25 30

Thr Thr Gly Gly Ile Asp Asp Met Cys Leu Lys Tyr Phe Val Glu Ala  
35 40 45

Gly Ala Met Ala Val Arg Arg Val Leu Lys Arg Asp Leu Lys Arg Ile  
50 55 60

Ala Lys Ala Ser Gly Ala Thr Ile Leu Ser Thr Leu Ala Asn Leu Glu  
65 70 75 80

Gly Glu Glu Thr Phe Glu Ala Ala Met Leu Gly Gln Ala Glu Glu Val  
85 90 95

Val Gln Glu Arg Phe Cys Asp Asp Glu Leu Ile Leu Ile Xaa Ile Pro  
100 105 110

Arg Xaa Asp Gly Xaa Ile Gly Phe Phe Arg Gly Ala Lys Phe Ser Arg  
115 120 125

Xaa Xaa Gly Gly Gly Leu Xaa Lys Xaa Leu Phe Gly Xaa Xaa Phe Gly  
130 135 140

Xaa Ile Gly Xaa Pro Gly Val Leu Lys Xaa Xaa Xaa Pro Lys Ile Xaa  
145 150 155 160

Pro Gly Xaa Asp Leu  
165

&lt;210&gt; 1806

&lt;211&gt; 91

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (11)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (14)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (18)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (79)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (82)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (89)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1806  
Ile Ala Gly Lys Leu Gln Asp Gly Leu Leu Xaa Ile Thr Xaa Xaa Ser  
1 5 10 15

Phe Xaa Ala Pro Trp Asn Ser Leu Ser Leu Ala Xaa Ala Gly Ala Ser  
20 25 30

Pro Arg Pro Thr Leu Leu Ala Val Arg Asn Ala Gln Cys Phe Pro Val  
35 40 45

Tyr Pro Ser Pro Val Lys Leu Gln Ser Gly Thr His Cys Leu Trp Thr  
50 55 60

Asp Gln Leu Leu Gln Gly Ser Glu Lys Gly Phe Gln Phe Pro Xaa Thr  
65 70 75 80

Leu Xaa Gly Leu Thr Ser Gly Ser Xaa Gly Leu  
85 90

<210> 1807  
<211> 123  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (102)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1807  
Ala Arg Pro Ser Arg Arg Arg Arg Arg Arg Arg Arg Pro Leu Gly Leu  
1 5 10 15  
Ala Met Ser Ser Ser Pro Val Lys Arg Gln Arg Met Glu Ser Ala Leu  
20 25 30  
Asp Gln Leu Lys Gln Phe Thr Thr Val Val Ala Asp Thr Gly Asp Phe  
35 40 45  
His Ala Ile Asp Glu Tyr Lys Pro Gln Asp Ala Thr Thr Asn Pro Ser  
50 55 60  
Leu Ile Leu Ala Ala Ala Gln Met Pro Ala Tyr Gln Glu Leu Val Glu  
65 70 75 80  
Glu Ala Ile Ala Tyr Gly Arg Lys Leu Gly Gly Ser Gln Glu Asp Gln  
85 90 95  
Ile Lys Asn Ala Ile Xaa Lys Leu Phe Val Leu Phe Gly Ala Glu Ile  
100 105 110  
Leu Lys Lys Ile Pro Gly Arg Val Ser Thr Glu  
115 120

<210> 1808  
<211> 131  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (58)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (124)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1808

Arg Leu Arg Gly Gly Cys Ser Val Leu Ser Val Gln Ala Ala Ala Gly  
1 5 10 15

Leu Ser Gln Arg Arg Pro Pro Phe Thr Leu Arg Ala Arg Ser Pro Ala  
20 25 30

Val Leu Pro Phe Arg Cys Pro Pro Cys His His Asp Gly Thr Gly His  
35 40 45

Leu Leu Arg Gln Arg Leu Leu Gly Arg Xaa Ile Ala Ala Ala Ile Ser  
50 55 60

Lys Thr Ala Val Ala Pro Ile Glu Arg Val Lys Leu Leu Leu Gln Val  
65 70 75 80

Gln His Ala Ser Lys Gln Ile Ala Ala Asp Lys Gln Tyr Lys Gly Ile  
85 90 95

Val Asp Cys Ile Val Arg Ile Pro Arg Ser Arg Arg Val Ser Phe Trp  
100 105 110

Arg Xaa Thr Leu Gln Arg His Arg Tyr Phe Pro Xaa Lys Pro Gln Phe  
115 120 125

Ala Ser Arg  
130

<210> 1809

<211> 93

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1809

Asp Trp Ser Lys Val Val Leu Ala Tyr Glu Pro Val Trp Ala Ile Gly  
1 5 10 15



Thr Gly Lys Thr Ala Thr Pro Gln Gln Ala Gln Glu Val His Glu Lys  
20 25 30

Leu Arg Gly Trp Leu Lys Ser Asn Val Ser Asp Ala Val Ala Xaa Ser  
35 40 45

Thr Arg Ile Ile Tyr Gly Gly Ser Val Thr Gly Ala Thr Cys Lys Glu  
50 55 60

Leu Ala Ser Gln Pro Asp Val Asp Gly Phe Leu Val Gly Gly Ala Ser  
65 70 75 80

Leu Lys Pro Glu Phe Val Asp Ile Ile Asn Ala Lys Gln  
85 90

<210> 1810

<211> 150

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (61)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (73)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (79)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (89)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (90)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (118)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (138)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (147)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1810

Ile Arg His Glu Gly Arg Gly Ile Xaa Ile Glu Arg Val Val Ser Ser  
1 5 10 15

Glu Gly Gly Arg Pro Ser Val Asp Leu Ser Phe Gln Pro Ser Lys Pro  
20 25 30

Leu Ser Lys Ser Ser Ser Ser Pro Glu Leu Gln Thr Leu Gln Asp Ile  
35 40 45

Leu Gly Asp Pro Gly Asp Lys Ala Asp Val Gly Arg Xaa Ser Pro Xaa  
50 55 60

Val Lys Ala Arg Ser Gln Ser Gly Xaa Leu Asp Gly Glu Ser Xaa Ala  
65 70 75 80

Trp Ser Val Ser Gly Glu Asp Ser Xaa Xaa Gln Pro Glu Gly Pro Leu  
85 90 95

Thr Ser Arg Xaa Pro Arg Phe Ala Gln Val Xaa Ser Gly Pro Val Gly  
100 105 110

Tyr Asn Ile Xaa Xaa Xaa Xaa Pro Ser Arg Xaa Gly Lys Xaa Leu Glu  
115 120 125

Arg Asp Ala Leu Arg Ala Glu His Ser Xaa Ile Gln Arg Ser Ser Arg  
130 135 140

Ile Thr Xaa Phe Val Ser  
145 150

&lt;210&gt; 1811

&lt;211&gt; 189

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (3)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (162)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (170)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (178)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1811

Gly Arg Xaa Gln Pro Ser Leu Lys Gly Thr Lys Ala Gly Ala Pro Pro  
1 5 10 15

Arg Cys Gly Arg Ser Arg Thr Ser Gly Ser Pro Gly Leu Gln Glu Phe  
20 25 30

Gly Thr Ser Glu Asp Glu Ile Asn Arg Arg Thr Ala Ala Glu Asn Glu  
35 40 45

Phe Val Val Leu Lys Lys Asp Val Asp Ala Ala Tyr Met Ser Lys Val  
50 55 60

Glu Leu Glu Ala Lys Val Asp Ala Leu Asn Asp Glu Ile Asn Phe Leu  
65 70 75 80

Arg Thr Leu Asn Glu Thr Glu Leu Thr Glu Leu Gln Ser Gln Ile Ser  
85 90 95

Asp Thr Ser Val Val Leu Ser Met Asp Asn Ser Arg Ser Leu Asp Leu  
100 105 110

Asp Gly Ile Ile Ala Glu Val Lys Ala Gln Tyr Glu Glu Met Ala Lys  
115 120 125

Cys Ser Arg Ala Glu Ala Glu Ala Trp Tyr Gln Thr Lys Phe Glu Thr  
130 135 140

Leu Gln Ala Gln Ala Gly Lys His Gly Asp Asp Leu Arg Asn Thr Arg  
145 150 155 160

Asn Xaa Ile Ser Glu Met Asn Arg Ala Xaa Gln Arg Leu Gln Ala Glu  
165 170 175

Ile Xaa Asn Ile Lys Asn Gln Arg Ala Lys Leu Glu Ala  
180 185

<210> 1812  
<211> 42  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (13)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (26)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1812  
Leu Leu Ala Ser Leu Ala Asn Leu Ala Leu Pro Xaa Xaa Ile Asn Leu  
1 5 10 15  
Leu Gly Glu Leu Ser Val Ala Ser Asn Xaa Val Leu Leu Ile Lys Tyr  
20 25 30  
His Ser Pro Thr Tyr Arg Asn Ser Thr Tyr  
35 40

<210> 1813  
<211> 121  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (103)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (106)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (109)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (116)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (121)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1813

Trp Pro Pro Val Leu Ala Phe Leu Gly Cys Val Trp Ser Leu Gly Pro  
1 5 10 15

Cys Leu Trp Gly Lys Ser Asn Arg Thr Leu Ala Leu Pro Lys Met Lys  
20 25 30

Gly Glu Glu Met Gly Leu Leu Phe Leu Ser Pro Glu Trp Glu Arg Ser  
35 40 45

Ser Gly Gly Trp Ser Phe Ser Thr Glu Glu Gly Ser Leu Lys Ala Leu  
50 55 60

Leu Thr Ser Cys Cys Thr Phe Cys Ile Ser Leu His Ala His Cys Leu  
65 70 75 80

Phe Leu Phe Leu Ala Leu Ala Pro Val Pro Val Pro Ala Pro Ala Asn  
85 90 95

Ala Lys Met Gln Met His Xaa Leu Ala Xaa Arg Val Xaa Ala Gly Leu  
100 105 110

Ser Cys Glu Xaa Gly Gly Trp Ala Xaa  
115 120

&lt;210&gt; 1814

&lt;211&gt; 28

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (17)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1814

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu  
1 5 10 15

Xaa Xaa Pro Xaa Ser Ala Pro His Xaa Ser Ser Pro  
20 25

<210> 1815

<211> 79

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (52)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1815

Ile Arg Xaa Ser Gly Asn Ala Asn Xaa Glu Asn Gly Glu Gln Glu Ala  
1 5 10 15

Asp Asn Glu Val Asp Glu Xaa Glu Glu Glu Gly Gly Glu Glu Glu Glu

20 25 30  
Glu Glu Glu Glu Gly Asp Gly Glu Glu Glu Asp Gly Asp Glu Asp Glu  
35 40 45  
Glu Ala Glu Xaa Ser Tyr Gly Pro Ser Gly Gln Leu Lys Met Met Arg  
50 55 60  
Met Thr Met Ser Ile Pro Arg Ser Arg Arg Pro Thr Arg Met Thr  
65 70 75

<210> 1816  
<211> 21  
<212> PRT  
<213> Homo sapiens

<400> 1816  
Lys Leu Lys Pro Gly Ala Ile Asp Ile Val Pro Gln Gly Lys Met Lys  
1 5 10 15

Asn Tyr Asn Gln Ala  
20

<210> 1817  
<211> 76  
<212> PRT  
<213> Homo sapiens.

<400> 1817  
Gly Lys Arg Gly Glu Ala Phe Pro Arg Ser Ser Gln Arg Trp Arg Phe  
1 5 10 15

Gly Arg Gly Phe Gly Gly Cys Ser Arg Phe Ala Gly Thr Leu Val Ile  
20 25 30

Ser Leu Ala Pro Leu Leu Pro Ala His Ser Pro Gly Leu Ala Gln Tyr  
35 40 45

Ile Gly Thr Cys Gly Phe Tyr Phe Val Phe Asp Val Pro Asp Arg Asn  
50 55 60

Arg Ala Arg Gly Thr Ala Lys Thr Thr Val Gly Ser  
65 70 75

<210> 1818



<211> 76  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (2)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (4)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (5)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (7)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (8)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (10)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (14)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (15)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (31)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (37)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (42)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (51)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (53)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (62)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (72)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (76)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1818

His	Xaa	Ile	Xaa	Xaa	Tyr	Xaa	Xaa	Pro	Xaa	Pro	Lys	Arg	Xaa	Xaa	Asn
1				5						10					15

Thr	Ala	Cys	Thr	Ser	Gln	Arg	Lys	Ile	Gln	Asn	Thr	Thr	Gln	Xaa	Ser
				20				25						30	

Xaa	Thr	Glu	Glu	Xaa	Phe	Pro	Pro	Thr	Xaa	Thr	Pro	Gly	Leu	His	Gln
				35				40					45		

Pro	Asn	Xaa	Thr	Xaa	Val	Gly	Phe	Gly	Phe	Asp	Ser	Gln	Xaa	Val	Leu
				50			55					60			

Cys Trp Leu Gln Arg Ile Asp Xaa Leu Asp Gly Xaa  
65 70 75

<210> 1819  
<211> 44  
<212> PRT  
<213> Homo sapiens

<400> 1819  
Arg Met Phe Leu Leu Pro Lys Asn Val Lys Pro Thr Met Glu Asp Trp  
1 5 10 15

Gly Arg Gly Gly Met Lys Tyr Lys Ile Met Ile Ile Tyr Thr Glu Leu  
20 25 30

Gly Phe Phe Met Phe Cys Lys Lys Val Phe Ile Ser  
35 40

<210> 1820  
<211> 36  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (1)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (35)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (36)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1820  
Xaa Ser Gly Ile Gly Arg Gly Ala Leu Arg Leu Lys Ser Phe Thr Ser  
1 5 10 15

Glu Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa  
20 25 30

Lys Lys Xaa Xaa  
35

<210> 1821  
<211> 32  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (1)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1821  
Xaa Asn Thr Leu Xaa Gly Val Lys Met Lys Ile Xaa Thr Gln Asp Met  
1 5 10 15

Asn Ile Phe Ser Cys Asn Leu Thr Ile Lys Ala Phe Ser His Thr Xaa  
20 25 30

<210> 1822  
<211> 39  
<212> PRT  
<213> Homo sapiens

<220>

<221> SITE  
 <222> (2)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <222> (4)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <222> (35)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <222> (37)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <222> (38)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (39)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1822  
 Gly Xaa Gly Xaa Asn Pro Ala Ser Thr Lys Asn Thr Lys Lys Lys Lys  
   1                  5                  10                  15  
 Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa Lys  
                   20                  25                  30  
 Lys Lys Xaa Lys Xaa Xaa Xaa  
                   35

<210> 1823  
 <211> 118  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (1)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (3)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (18)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (23)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (82)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1823

Xaa Asn Xaa Ser Ile Thr His Cys Thr His Gln Gly Lys Pro Gly Tyr  
 1 5 10 15

Ala Xaa Gln Val Thr Gly Xaa Gly Asn Ser Arg Val Asp Pro Arg Val  
 20 25 30

Arg Pro Arg Val Arg Pro Arg Val Arg Pro Arg Val Arg Ser Cys His  
 35 40 45

Asp Leu Tyr Leu Met Val Phe Ile Ser Arg Val His Leu Arg Glu Ala  
 50 55 60

Thr Leu Ser Ser Arg Ala Gln Met Glu Arg Arg Phe Cys Ala Val Gly  
 65 70 75 80

Ser Xaa Leu Pro Arg Ser Gly Val Arg Glu Glu Asn Tyr Pro Ala Gly  
 85 90 95

Phe Asn Leu Phe His Pro Val Cys Ser Pro Gly Val Ala Ser Ala Leu  
 100 105 110

Arg Thr Ile Arg Phe Thr  
 115

<210> 1824  
<211> 95  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (59)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (74)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (76)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (78)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (84)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (85)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1824  
Asp Gln Gly Cys Ser Val Arg Ala Pro Pro Arg His Asp Phe Leu Gln  
1 5 10 15  
Leu Ser Pro Val Val Gly His Val Val Leu Arg Arg Pro Gly Arg Arg  
20 25 30  
Leu Arg Gly Val Leu Gly Arg Gly Ser Pro Phe Ala Arg Pro Ala Phe  
35 40 45  
Thr Gly Ala Pro Ala Ala Ala Tyr Pro Xaa Pro Pro Pro Ala Leu  
50 55 60  
Cys Pro Arg Pro Pro Arg Gly Pro Thr Xaa Val Xaa Lys Xaa Gly Val  
65 70 75 80

Leu Asn Arg Xaa Xaa Thr Gly Cys Trp Ala Gly Asn Glu Glu Ala  
85 90 95

<210> 1825

<211> 17

<212> PRT

<213> Homo sapiens

<220>

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<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (6)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1825

Xaa Tyr Ser Glu Ser Xaa Tyr Asn Ser Leu Ala Val Val Leu Gln Pro  
1 5 10 15

Arg

<210> 1826

<211> 69

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (9)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>



<221> SITE

<222> (40)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1826

Thr Cys Arg Ala Leu Leu Arg Arg Xaa Ala Val Phe Gln Pro Ser Pro  
1 5 10 15

Asn Ala Phe Phe Arg Cys Val Ser Glu Asp Leu Gly Phe Ala Val Leu  
20 25 30

Xaa Thr Gln Leu Met Leu Xaa Xaa Leu Arg Phe Thr Gly Phe Ile Thr  
35 40 45

Val Gly Ile Thr Pro Lys Ala Ser Pro Leu His Val Thr Glu His Val  
50 55 60

Leu Asn Gln Arg Ser  
65

<210> 1827

<211> 167

<212> PRT

<213> Homo sapiens

<220>

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<222> (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

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<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<222> (78)

<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (101)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (110)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (114)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (122)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<222> (123)  
<223> Xaa equals any of the naturally occurring L-amino acids

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<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (146)  
<223> Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (147)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (159)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1827

Gly Glu Ala Phe Gly Ser Thr Leu Trp Asp Gly Pro Trp Arg Ala Leu  
 1 5 10 15

Pro Xaa Xaa Xaa Gly Trp Arg Arg Lys Arg Pro Ile Trp Gly Trp Gly  
 20 25 30

Pro Pro Ser Pro Trp Asn Xaa Ser Gly Ser Asp Ala Trp Cys Ala Trp  
 35 40 45

Ser Thr Arg Glu Leu Val Arg Asp Val Ala Lys Met Leu Pro Thr Leu  
 50 55 60

Gly Gly Glu Arg Lys Gly Ser Pro Arg Ile Leu Pro Arg Xaa Pro Pro  
 65 70 75 80

Arg Lys Leu Gly Xaa Leu Phe Leu Pro Gly Ala Gln Gly Thr His Tyr  
 85 90 95

Leu Xaa Pro Pro Xaa Val Trp Ala Gln Thr Arg Phe Pro Xaa Thr Xaa  
 100 105 110

Gln Xaa Leu Leu Ala Ser Pro Phe Pro Xaa Xaa Lys Lys Lys Gln Lys  
 115 120 125

Gly Gly Gly Lys Lys Arg Gly Xaa Leu Gly Gly Pro Phe Lys Gly Pro  
 130 135 140

Pro Xaa Xaa Arg Phe Pro Phe Leu Lys Ile Gly Lys Asn Pro Xaa Gly  
 145 150 155 160

Val Pro Ser Ser Pro Pro Phe  
 165

&lt;210&gt; 1828

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

<220>

<221> SITE

<222> (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1828

Pro	Tyr	Ser	Glu	Ser	Tyr	Tyr	Asn	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg
1				5					10					15	

Arg	Xaa	Val	Xaa	Asn	Xaa	Xaa	
				20			

<210> 1829

<211> 35

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (9)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (11)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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<222> (15)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (20)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (25)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1829  
Xaa Arg Xaa Lys His Met Xaa Phe Xaa Phe Xaa Leu Thr Leu Xaa Leu  
1 5 10 15

Pro Thr Ser Xaa Pro Glu Gln His Xaa Ser Cys Phe Asp Thr His Leu  
20 25 30

His Leu Tyr  
35

<210> 1830  
<211> 74  
<212> PRT  
<213> Homo sapiens

<220>  
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<222> (41)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (61)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (72)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (74)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1830

Pro Arg Ser Pro Arg Val Leu His His Val Ser Val Leu Trp Gly Gly  
1 5 10 15

Ser Lys Gly Pro Trp Ser Trp Pro Arg Pro Arg His Arg Glu Arg Leu  
20 25 30

Asp Phe Leu Ser Leu Cys Ala Glu Xaa Leu Arg Trp Arg Pro Leu Ser  
35 40 45

Leu Thr Gln Gln Leu Lys His Thr Ile Ser Gly Ser Xaa Trp Leu Pro  
50 55 60

His Pro Leu Xaa Cys Pro Leu Xaa Ser Xaa  
65 70

<210> 1831

<211> 43

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (32)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (35)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (43)

<223> Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1831

Gly Thr Ser Gly Thr Arg Gly Gly Pro Val Pro Asn Ser Pro Tyr Ser  
1 5 10 15

Glu Ser Tyr Tyr Asn Ser Leu Ala Val Val Leu Gln Leu Arg Asp Xaa  
20 25 30

Gly Asn Xaa Lys Tyr Phe Arg Ala Arg Met Xaa  
35 40

&lt;210&gt; 1832

&lt;211&gt; 66

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1832

Glu Asn Leu Phe Ile Tyr Cys Leu Leu Val Met Gly Gly Glu Gly Arg  
1 5 10 15

Phe Lys Gly Pro Gly Thr Trp Glu Pro Ser His Arg Asp Gln Arg Gly  
20 25 30

Leu Ser Leu Asn Thr Thr Gly Val Tyr Ser Gly Ser Ser Thr Gln Leu  
35 40 45

Leu Gly Ser Cys Pro Asn Gly Pro Pro Leu Gln His Pro Ser Trp Arg  
50 55 60

Arg Gly  
65

&lt;210&gt; 1833

&lt;211&gt; 40

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (18)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (30)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (38)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1833

Ser	Phe	Pro	Arg	Thr	Thr	Gly	Val	Ser	Ser	Leu	Ile	Val	Cys	Tyr	Ala
1				5				10					15		

Met	Xaa	His	Leu	Lys	Gln	Tyr	Phe	Ile	Leu	Leu	Phe	Phe	Xaa	Lys	Thr
		20						25					30		

Gln	Asn	Thr	Cys	Asn	Xaa	Lys	Pro
	35					40	

&lt;210&gt; 1834

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (2)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (26)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (43)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1834

Ala	Xaa	Arg	Val	Gly	Gly	Thr	His	Ala	Ser	Val	Asp	Pro	Arg	Val	Arg
1				5					10					15	

Asp	Leu	Gly	Asn	Tyr	Pro	Asn	Lys	Leu	Xaa	Ser	Pro	Leu	Ser	Cys	Gln
		20						25					30		

Tyr	Trp	Asn	Cys	Ser	Ser	Gln	Val	Phe	Ala	Xaa	Ile	Ser	His	Pro	Glu
		35					40					45			

Arg	Lys	Asn	Asp	Arg	Glu	Asn	Leu	Cys	Ser	Asp	Thr	Thr	Asp	Ser	Tyr
	50					55					60				

Ile	Val	Glu	Gln	Tyr	Leu	Ser
-----	-----	-----	-----	-----	-----	-----



65

70

&lt;210&gt; 1835

&lt;211&gt; 58

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (45)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1835

Ile Cys Pro Gln Asn Pro Leu Asn Pro Leu Gly Asn Leu Thr Gly Ser  
1 5 10 15

Pro Lys Arg Asn Ser Ser Leu Asp Thr Arg Lys Lys Pro Trp Arg Glu  
20 25 30

Ser Lys Lys Phe Asn Thr His Ser Arg Pro Lys Ser Xaa His Gln Leu  
35 40 45

Arg Lys Arg Ser Ser Ser Thr Pro Thr Thr  
50 55

&lt;210&gt; 1836

&lt;211&gt; 80

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (49)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1836

Val Cys Trp Pro Val Gly Phe Gly Thr Ser Phe Ser Glu Arg Arg Arg  
1 5 10 15

Lys Leu Pro Trp Leu Glu Pro Cys Ser Ala Gly Lys Gly Val Trp Arg  
20 25 30

Pro Leu Leu Gly Lys Trp Arg Thr Thr Ser Gly Ala Glu Glu Ala Cys  
35 40 45

Xaa Arg Lys Val Ser Arg Ile His His Lys Arg Ala Thr Arg Ala Trp  
50 55 60

Lys Lys Leu Lys Thr Cys Tyr Pro Pro Ser Leu Leu His Pro Gly Thr  
65 70 75 80

<210> 1837

<211> 24

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (20)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1837

Gly Xaa Gly Arg Glu Arg Glu Arg Thr Ser Leu Val Phe Phe Phe Phe  
1 5 10 15

Phe Phe Gly Xaa Lys Ile Xaa Phe  
20

<210> 1838

<211> 127

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (29)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (90)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (111)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (119)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (122)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1838

His Glu Gly Glu Ile Ala Val Leu Ala Ser Gly Ala Arg Arg Leu Glu  
1 5 10 15

Leu Leu Arg Pro Arg Gly Asn Arg Ser Gly Thr Pro Xaa Gly Gly Glu  
20 25 30

Ala Ser Arg Ser Leu Arg Asp Thr Lys Ala Pro Ala Thr Arg Trp Leu  
35 40 45

Gln Leu Gly Arg Gly Arg Gln Asp Asp Gly Ser Gly Phe Gly Ser Val  
50 55 60

Thr Arg Arg Pro Glu Gly Ala Gly Pro Ala Xaa Ser Ala Arg Ala Pro  
65 70 75 80

Ala Leu Ala Asp Arg Asp Leu Arg Pro Xaa Met Gly Lys Lys Ala Glu  
85 90 95

Ala Arg Ala Pro Ile Leu Phe Gly Glu Lys Gln Ala Ser Leu Xaa Ser  
100 105 110

Phe Gly Ile Arg Lys Phe Xaa Thr Trp Xaa Lys Trp Cys Val Val  
115 120 125

<210> 1839

<211> 57

<212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (38)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
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 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
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 <222> (48)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (54)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1839  
 Ala Arg Ala Cys Ser Ser His Trp Cys Asp Ser Ser Ile Pro Phe Ala  
     1                    5                    10                    15  
 Arg Asn Gly Pro Gln Leu Leu Leu Arg His Trp Trp Leu Leu His Val  
                     20                    25                    30  
 Arg Arg Leu Leu Gln Xaa Gln Arg Val Gln Met Xaa Leu Leu Gln Xaa  
             35                    40                    45  
 Glu Leu Leu Phe Leu Xaa Pro Arg Gly  
     50                    55

<210> 1840  
 <211> 33  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> SITE  
 <222> (10)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (30)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (33)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1840

Gln Gln His Arg Arg Gly Ser Arg Glu Xaa Pro Ala Leu Leu Ala Pro  
1 5 10 15

Arg Xaa Gly Ile Ser Phe Thr Lys Pro Thr Arg Leu Trp Xaa Pro Arg  
20 25 30

Xaa

<210> 1841

<211> 85

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (8)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1841

Ala Arg Gly Gln Ser Ala Trp Xaa Thr Ala Leu Xaa Pro Trp Tyr Cys  
1 5 10 15

Met His Ala Met Leu Ala Ala Pro Phe Pro Ser Trp Ala Pro Arg Val  
20 25 30

Ser Pro Asp Pro Gly Ser Gln Val Cys Ser His Leu His Leu Pro His  
35 40 45

Ser Pro Pro Leu Pro Ser Ser Arg His Leu His Ala His Leu Val Leu  
50 55 60

Ser His Arg Pro Gln Lys Gly Gly His Glu Gly Thr Ser Leu Ala Glu  
65 70 75 80

Leu Gly Gly Ala Gly  
85

<210> 1842  
<211> 64  
<212> PRT  
<213> Homo sapiens

<400> 1842  
His Ala Thr Cys Asn Ser Leu His Asp Pro Phe Cys Ile Phe Lys Pro  
1 5 10 15

Lys Leu Ser Ala Ser Val Ala Phe Gln Gly Asn Lys Glu Ser Asn Cys  
20 25 30

Gly Leu Asp Phe Val Ser Phe Phe Gln Asn Leu Ser Phe Ile Gln Phe  
35 40 45

Pro Ser Ile Ile Ile Tyr Phe Tyr Leu Glu Val Ser Lys Glu Val Phe  
50 55 60

<210> 1843  
<211> 73  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (12)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (44)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (55)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (56)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (70)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1843

Ser Trp Cys Phe Ser Glu Ile Ile Tyr Ile Phe Xaa Ser Gln Gly Leu  
1 5 10 15

Thr Val Ser Pro Arg Leu Glu Ala Glu Val Val Ala Arg Ala Glu Phe  
20 25 30

Asp Ile Lys Leu Ile Asp Thr Val Asp Leu Glu Xaa Gly Ala Arg Tyr  
35 40 45

Pro Ile Arg Pro Ile Ser Xaa Xaa Val Leu Gln Phe Thr Gly Pro Ser  
50 55 60

Phe Leu Lys Arg Gly Xaa Leu Gly Lys  
65 70

<210> 1844

<211> 73

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (7)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (28)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

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<222> (60)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (68)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1844

Arg Gly Arg Gly Trp Arg Xaa Val Leu Leu Gly Trp Glu Gly Thr Ser  
1 5 10 15

Pro Arg Thr Gln Xaa Gly Lys Gly Xaa Arg Pro Xaa Gly Glu Xaa Thr  
20 25 30

Asp Met Ser Leu Glu Asp Pro Phe Phe Val Val Arg Gly Glu Val Gln  
35 40 45

Lys Ala Val Asn Thr Gly Pro Arg Ala Val Pro Xaa Leu Val Arg Xaa  
50 55 60

Pro Ala Arg Xaa Xaa Gly Val Arg Asn  
65 70

<210> 1845

<211> 67

<212> PRT

<213> Homo sapiens



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (8)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (21)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (22)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (30)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (43)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (64)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1845

Ala	Glu	Gly	Gln	Ser	Asn	Leu	Xaa	Met	Ser	Gly	Trp	Phe	Trp	Thr	Ala
1				5					10					15	

Thr	Pro	Ala	Gly	Xaa	Xaa	Pro	Arg	Ser	Ser	Cys	Thr	Thr	Xaa	Lys	Val
		20					25						30		

Ala	Ser	Ser	Pro	Lys	His	Ser	Phe	Pro	Leu	Xaa	Ser	Pro	Ser	Asn	Pro
		35					40					45			

Glu	Ala	Leu	Trp	Cys	Ala	Leu	Cys	Pro	Met	His	Ser	His	Leu	Ser	Xaa
	50					55					60				

Pro	Pro	Gly
	65	

&lt;210&gt; 1846

&lt;211&gt; 45

&lt;212&gt; PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (1)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (17)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1846

Xaa	Val	Gln	Thr	Pro	Ser	Leu	Leu	Gly	Thr	Gly	Val	Arg	Gly	Arg	Leu
1				5				10					15		

Xaa	Phe	Val	Glu	Lys	Pro	Pro	Val	Lys	Ala	Ser	Gly	Gly	Ser	Pro	Cys
		20					25						30		

Cys	Ile	Val	Cys	Leu	Leu	Ser	Phe	Pro	Leu	Val	Arg	Arg
	35					40					45	

<210> 1847

<211> 77

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (3)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (14)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (18)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (22)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (32)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (53)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (74)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (76)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1847

Glu Gln Xaa Lys Glu His Thr Arg Ile Cys Ser Lys Ile Xaa Gly Arg  
1 5 10 15

Phe Xaa Gly Arg Gly Xaa Xaa Pro Thr Glu Pro Gly Asp Met Leu Xaa  
20 25 30

Val Gln Asp Lys Asn Xaa Arg Leu Thr Phe Lys Phe Gly His Arg Thr  
35 40 45

Leu Leu Asn Pro Xaa Gly Asn Leu Thr Gly Lys Pro Lys Glu Glu Gln  
50 55 60

Val Phe Trp Thr Leu Gly Lys Lys Pro Xaa Xaa Xaa Glu  
65 70 75

<210> 1848  
<211> 31  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (26)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (27)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (31)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1848  
Ala Arg Ala His Thr His Pro Arg Thr Gly Phe Val Lys Lys Lys Lys  
1 5 10 15  
Lys Lys Lys Lys Lys Lys Lys Lys Lys Xaa Xaa Gly Gly Ala Xaa  
20 25 30

<210> 1849  
<211> 58  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (26)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1849  
Trp Pro Ala Val Thr Gly Phe Lys Thr Gly Leu Phe Leu Val Lys Met  
1 5 10 15  
Gly Glu Leu Leu Ser Cys Gln Lys Cys Xaa Arg Ser Thr Trp Lys Thr  
20 25 30

Lys Ser Ser Gln Arg Glu Ser Lys Glu His Leu Ile Ser Leu Ile Ser  
35 40 45

Thr Cys Ser Tyr Phe Ser Lys Val Asn Ser  
50 55

<210> 1850  
<211> 69  
<212> PRT  
<213> Homo sapiens

<400> 1850  
Ala Ile His Leu Pro Thr Pro Leu Phe Phe Lys Thr Ser Phe Asn Ser  
1 5 10 15  
Leu Asn Lys Ile Gly Phe Val Phe Asn Phe Tyr Ser Leu Phe Ile Glu  
20 25 30  
Ser Gln Leu Pro Leu Tyr Ile Ile Cys Tyr Trp Lys Arg Phe Leu Ser  
35 40 45  
Asn Leu Gln Ser Leu Ile Val Pro His Arg Val Gly Gln Trp Leu Leu  
50 55 60  
Glu Leu Glu Gly Pro  
65

<210> 1851  
<211> 166  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (98)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (107)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (109)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (111)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (122)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (134)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (144)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (146)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (150)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<220>  
 <221> SITE  
 <222> (154)  
 <223> Xaa equals any of the naturally occurring L-amino acids

<400> 1851  
 Met Trp Lys Val Asp Trp Asp Pro Val Val Ser His Pro Lys Pro Ala  
   1                  5                  10                  15  
 Phe Arg Glu Gly Leu Gln Thr Gln Asn Val Asn Pro Ala Ser Pro Leu  
           20                  25                  30  
 Ser Gln Asn Cys Gly Leu Val Pro Gly Arg Gly Gly Gly Trp Gly Gly  
       35                  40                  45  
 Ala Gly Gly Lys Phe Arg Phe Trp Arg Ala Pro Cys Gly Asp Ala Pro  
   50                  55                  60  
 Ser Cys Ala Leu Leu Phe Pro Arg Trp Ser Pro Arg Ser Pro Ser Gly  
   65                  70                  75                  80  
 Ser Ala Cys Pro Ala Leu Lys Arg His Pro Pro Phe His Pro Val Ser  
           85                  90                  95  
 Gly Xaa Gly Cys Gly Ser Gly Arg His Ala Xaa Pro Xaa Cys Xaa Val  
       100                  105                  110

Phe Glu Gln Ala Lys Ala Pro Thr Gly Xaa Gly Arg Ala Gly Val Lys  
115 120 125

Thr Val Lys Trp Leu Xaa Leu Asn Ile Pro Leu Trp Arg Asn Phe Xaa  
130 135 140

Lys Xaa Asn Ser Lys Xaa Ser Phe Trp Xaa Asn Glu Asn Gly Gln Val  
145 150 155 160

Arg Leu Val Lys Asn Phe  
165

<210> 1852

<211> 74

<212> PRT

<213> Homo sapiens

<400> 1852

Asp Pro Arg Val Arg Gly Ala Arg Ser Val Val Leu Leu Leu Val Ala  
1 5 10 15

Val Arg Leu His Thr Leu Leu Ser Cys Pro Leu Glu Gln Pro Ala Gly  
20 25 30

Thr Glu Trp Ile Leu Glu Glu Gly Val Thr Thr Gly Pro Pro Arg Lys  
35 40 45

Pro Arg Ala Asp Ile Tyr Asn Leu Arg Ser Pro Asp Glu Phe Ile Val  
50 55 60

Gly Gln Asn Gln Ala Leu Ile Glu Pro Gly  
65 70

<210> 1853

<211> 100

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (46)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (47)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (82)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1853

His Arg Gly Glu Cys Phe Ser Cys Val Ala Pro Arg Ala Gln Ser Ser  
1 5 10 15

Cys His Arg Arg His Pro Gly Phe Gly Gly Ala Gly Leu Gln Ala Pro  
20 25 30

Gly Arg Arg Thr Pro Arg Ala Thr Lys Ser Ser Leu Glu Xaa Xaa Ala  
35 40 45

Ser Tyr Ala Gly Gly Arg Gly Gly Gly Pro Asp Phe Gly Ser Arg Gly  
50 55 60

Leu Thr Gly Leu Val Arg Pro Val Trp Leu Leu Trp Lys Gln Cys  
65 70 75 80

Cys Xaa Leu Leu Glu Asp Lys Arg Glu Ser Lys Pro Leu Val Gly Glu  
85 90 95

Ile Trp Leu Arg  
100

<210> 1854

<211> 125

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (2)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (91)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (99)

<223> Xaa equals any of the naturally occurring L-amino acids



&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (103)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (104)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (109)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (122)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1854

Arg Xaa Ala Gly Ala Gly Gly Pro Val Arg Gly Leu Leu Val Gly Leu  
1 5 10 15

Val Arg Gln Gln Arg Leu Arg Leu Arg Ser Gly Ala Gln Gln Pro His  
20 25 30

His Ala Ala Arg His Pro Asp Pro Gln Leu Cys Arg Arg Gly Arg Arg  
35 40 45

Arg Leu Leu Pro Gln Ser Ala Ala Ala Ala Ala Gly Pro Gly Ala  
50 55 60

Pro Arg Ala Ala Pro Ala Pro Pro Ser Ala Thr Leu Pro Ala Gly Ala  
65 70 75 80

Ala Ala Pro Pro Ser Pro Pro Phe Ser Phe Xaa Leu Pro Arg Arg Pro  
85 90 95

Cys Pro Xaa Arg Pro Cys Xaa Xaa Ala Pro Lys Xaa Pro Gly Ile  
100 105 110

Arg Cys Ser Glu Arg Glu Ser Asn Leu Xaa Arg Val Pro  
115 120 125

&lt;210&gt; 1855

&lt;211&gt; 85

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (49)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (51)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (69)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1855

Val Gly Ser Ala Cys Leu Leu Asn Trp Tyr Gln Pro Leu Pro Leu Pro  
1 5 10 15

Ser Lys Phe Leu Val Pro Pro Leu Arg Asn Ser Arg Ile Val Leu Gln  
20 25 30

Ile Asp Asn Ala Arg Xaa Ala Ala Asp Glu Leu Pro Asn Gln Val Ser  
35 40 45

Xaa Ser Xaa Leu Gly Ala Ala Glu Ala Arg Thr Gly Val Gly Val Gly  
50 55 60

Gly Phe Arg Asn Xaa Pro Ser Pro Ser Leu Asp Gly Leu Lys Leu Asn  
65 70 75 80

Pro Pro Met Asp Ser  
85

<210> 1856

<211> 44

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (19)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (21)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (26)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (34)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (38)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1856

Tyr Gln Gln Ile Thr Ser Ser Ser Arg Leu Ser Ile Gln Leu Ile Leu  
1 5 10 15

Ile Ser Xaa Asp Xaa Asn Val Thr Gln Xaa Leu Leu Ile Ala Pro Asn  
20 25 30

Lys Xaa Val Ser Val Xaa Pro Leu Pro Ser Glu Leu  
35 40

<210> 1857

<211> 76

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (23)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (27)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (31)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (32)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (39)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (41)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (56)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (64)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1857

Ser Thr His Ala Ser Gly Phe Ser Ala Pro Ser Arg Ile Ser Ala Trp  
1 5 10 15

Phe Gly Pro Pro Ala Ser Xaa Pro Ala Ser Xaa Met Ser Ile Xaa Xaa  
20 25 30

Thr Gln Lys Ser Tyr Lys Xaa Ser Xaa Ser Gly Pro Arg Gly Phe Ser  
35 40 45

Ser Arg Ser Tyr Thr Ser Gly Xaa Gly Ser Arg Ile Ser Ser Ser Xaa  
50 55 60

Phe Ser Arg Val Gly Ser Ser Asn Phe Arg Gly Gly  
65 70 75

<210> 1858

<211> 83

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (71)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (75)

<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1858

Arg Leu Arg Thr Lys Thr Cys Thr Trp Ser Phe Pro Gly Ala Leu Cys  
1 5 10 15

Val Val Glu Leu Arg Trp Asn Phe Gly Ala Leu Gly Cys Gln Arg Ala  
20 25 30

Cys Leu Val Ala Thr Glu Thr Ser Pro Ala Arg Leu Arg Gly His Phe  
35 40 45

Ile Thr Ile Gln Lys Cys Leu Pro Leu Lys Ala Ser Val Val Val Phe  
50 55 60

Lys Pro Gln Lys Ser His Xaa Gln Asp His Xaa Thr Thr Thr Leu Thr  
65 70 75 80

Ser Val Pro

<210> 1859

<211> 58

<212> PRT

<213> Homo sapiens

<220>

<221> SITE

<222> (10)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (12)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE

<222> (25)

<223> Xaa equals any of the naturally occurring L-amino acids

<220>

<221> SITE  
<222> (33)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (40)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (57)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1859  
Lys Ser Ser Pro Gly Lys Met Gly Leu Xaa Glu Xaa Ala Thr Gly Thr  
1 5 10 15

Ala Ser Cys Arg Trp Ser Trp Pro Xaa Ser His Arg Pro Val Tyr Lys  
20 25 30

Xaa Cys Ala Ser Trp Thr Leu Xaa Ser Gly Thr Gly Ser Trp Thr Leu  
35 40 45

Lys Ser Leu Val Pro Pro Ala Arg Xaa Trp  
50 55

<210> 1860  
<211> 61  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (45)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (47)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (59)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1860  
Gln Asp Gln Ser Cys Arg Lys Met Asp Ser Glu Val Gln Arg Asp Gly

1

5

10

15

Arg Ile Leu Asp Leu Ile Asp Asp Ala Trp Arg Glu Asp Lys Leu Pro  
20 25 30

Tyr Glu Asp Val Ala Ile Pro Leu Asn Glu Leu Pro Xaa Pro Xaa Gln  
35 40 45

Asp Asn Gly Gly Thr Thr Asp Leu Ser Lys Xaa Lys Lys  
50 55 60

&lt;210&gt; 1861

&lt;211&gt; 71

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (61)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1861

Ser Arg Gly Ala Pro Phe Phe Lys Pro Val Arg Lys Ala Gln Tyr Ser  
1 5 10 15

Gly Gly Ser Asp Pro Ile Phe Gln Val Arg Pro Ser Pro Leu Ser Leu  
20 25 30

Thr Arg Lys Gly Asn Ser Leu Thr Pro Cys Ala Ser Gln Val Arg Gln  
35 40 45

Cys Ser Pro Cys Phe Gly Ser His Thr Val Arg Ala Xaa Thr Asp Leu  
50 55 60

Cys Pro Leu Ser Gly Thr Pro  
65 70

&lt;210&gt; 1862

&lt;211&gt; 59

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (57)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1862

Thr Pro Thr Pro Phe Gly Ser Ala Arg Ala Pro Gln Ala Arg Pro Gly  
1 5 10 15

Arg Arg Asp Gly Arg Met Ser Gly Gly Arg Arg Lys Glu Glu Pro Pro  
20 25 30

Gln Pro Gln Leu Ala Asn Gly Ala Leu Lys Val Ser Val Trp Ser Lys  
35 40 45

Val Leu Arg Thr Thr Arg Pro Gly Xaa Ile Arg  
50 55

&lt;210&gt; 1863

&lt;211&gt; 83

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (77)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (83)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1863

Gln Leu Ser Thr Leu Ile Asn Trp Leu Gln Ser Thr Ser Pro Ala Ala  
1 5 10 15

Gly Lys Lys Gly Gly Arg Ser Pro Gly Arg Phe Glu Ala Ala Ser Ser  
20 25 30

Asn Leu Gln Phe Asn Met Lys Ile Thr Ser Glu Leu Val Lys Arg Gly  
35 40 45

Leu Thr Pro Val Phe Arg Phe Thr Val Gln Cys Phe Thr Gln Pro Phe  
50 55 60

Tyr Leu Thr Pro Lys Lys Lys Lys Lys Lys Lys Asn Xaa Gly Gly Gly  
65 70 75 80

Pro Gly Xaa



<210> 1864  
<211> 37  
<212> PRT  
<213> Homo sapiens

<400> 1864  
Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg  
1 5 10 15  
Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu  
20 25 30  
Ser Lys Ile Glu Ser  
35

<210> 1865  
<211> 41  
<212> PRT  
<213> Homo sapiens

<400> 1865  
Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg  
1 5 10 15  
Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu  
20 25 30  
Ser Lys Ile Glu Ser Leu Val Gln Leu  
35 40

<210> 1866  
<211> 33  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (32)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1866  
Asn Thr Glu Leu Thr Ile Asn Ser Pro Ile Ser Thr Ile Asn Gln Gln  
1 5 10 15  
Val Ile Ile Thr Leu Thr Val Asn Pro Thr Lys Lys Lys Lys Xaa  
20 25 30

Lys

&lt;210&gt; 1867

&lt;211&gt; 143

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1867

Gly Ser Gly Gly Lys Met Glu Asp His Gln His Val Pro Ile Asp Ile  
1 5 10 15

Gln Thr Ser Lys Leu Leu Asp Trp Leu Val Asp Arg Arg His Cys Ser  
20 25 30

Leu Lys Trp Gln Ser Leu Val Leu Thr Ile Arg Glu Lys Ile Asn Ala  
35 40 45

Ala Ile Gln Asp Met Pro Glu Ser Glu Glu Ile Ala Gln Leu Leu Ser  
50 55 60

Gly Ser Tyr Ile His Tyr Phe His Cys Leu Arg Ile Leu Asp Leu Leu  
65 70 75 80

Lys Gly Thr Glu Ala Ser Thr Lys Asn Ile Phe Gly Arg Tyr Ser Ser  
85 90 95

Gln Arg Met Lys Asp Trp Gln Glu Ile Ile Ala Leu Tyr Glu Lys Asp  
100 105 110

Asn Thr Tyr Leu Val Glu Leu Ser Ser Leu Leu Val Arg Asn Val Asn  
115 120 125

Tyr Glu Ile Pro Ser Leu Lys Lys Gln Ile Ala Lys Cys Gln Gln  
130 135 140

&lt;210&gt; 1868

&lt;211&gt; 37

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1868

Glu Gln Leu Lys Glu His Thr Arg Leu Cys Ser Lys Ile Val Gly Arg  
1 5 10 15

Phe Ile Gly Arg Gly Asp Lys Pro Thr Glu Pro Gly Asp Ser Trp Leu  
20 25 30

Ser Lys Ile Val Ser  
35

<210> 1869  
<211> 57  
<212> PRT  
<213> Homo sapiens

<400> 1869  
Ile Leu Gln Ala Val Arg Thr Glu Trp Tyr Ile Val Val Phe Leu Asn  
1 5 10 15  
Ile Ser Glu Pro Arg Lys Gly Thr Val Glu Ile Arg Tyr Tyr Asn Leu  
20 25 30  
Met Gly Pro Leu Ser Val Cys Gly Leu Leu Leu Thr Glu Met Leu Cys  
35 40 45  
Ser Thr Trp Ala Ala Met Arg Leu Pro  
50 55

<210> 1870  
<211> 63  
<212> PRT  
<213> Homo sapiens

<400> 1870  
Val Pro His Ser Glu Leu Leu Gln Pro Ala Ser Arg Ile Cys Ser Met  
1 5 10 15  
Ser Arg Arg Ser Gln Ser Leu Ala Ala Ser Ser Val Pro Gly Glu Arg  
20 25 30  
Cys Leu Glu Leu Ser Ser Gln Gly Val Met Ser Ala Ser Arg Val Cys  
35 40 45  
Met Gly Ala Glu Gly Thr Leu Leu Leu Pro Pro Trp Ser Gly Asn  
50 55 60

<210> 1871  
<211> 70  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (19)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (62)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (63)  
<223> Xaa equals any of the naturally occurring L-amino acids

<220>  
<221> SITE  
<222> (68)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1871

Thr Trp Cys His Glu Val Gly Glu Leu Gly Glu Leu Ser His Ser Ser  
1 5 10 15

Tyr Arg Xaa Ala Phe Leu Lys Cys Pro Leu Thr Ser Arg Phe Cys Ser  
20 25 30

Arg Ser Ser Phe Ser Glu Leu Lys Val Ile Phe Ile Tyr Val Trp Gly  
35 40 45

Lys Ile Asn Ser Ser Ser Lys Arg Ile Leu Ile Arg Leu Xaa Xaa Leu  
50 55 60

Leu Lys Thr Xaa Pro Asn  
65 70

<210> 1872  
<211> 47  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SITE  
<222> (45)  
<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1872

Glu Thr Trp His Leu Asn His Ile Leu Ser Leu Gly Lys Ser Phe Gly  
1 5 10 15

Leu Cys Ser Cys Phe Val Cys Phe Thr Cys Phe Pro Pro Ser Pro Lys  
20 25 30

Pro Phe Val Leu Ser Val Lys Leu Thr Phe Pro Phe Xaa Phe Leu  
35 40 45

<210> 1873  
<211> 75  
<212> PRT  
<213> Homo sapiens

<400> 1873  
Lys Thr Leu Leu Leu Trp Asn Met Lys Leu Cys Val Arg Trp Arg Asp  
1 5 10 15

Pro Leu Asn Leu Arg Ala Leu Asn Ser Pro Glu Ser Thr Leu Gly Arg  
20 25 30

Phe Ala Met Glu Leu Lys Leu Glu Val Ile Phe Leu Gly Ala Leu Glu  
35 40 45

Ser Phe Leu Gly Thr Gln Asn Tyr Gln Lys Ser Gly Thr Val Arg Arg  
50 55 60

Lys Ser Val Cys Lys Thr Gly Phe Leu Glu Val  
65 70 75

<210> 1874  
<211> 107  
<212> PRT  
<213> Homo sapiens

<400> 1874  
Ile Asn Asn Ile Ser Arg Gln Ile Tyr Leu Thr Asp Asn Pro Glu Ala  
1 5 10 15

Val Ala Ile Lys Leu Asn Gln Thr Ala Leu Gln Ala Val Thr Pro Ile  
20 25 30

Thr Ser Phe Gly Lys Lys Gln Glu Ser Ser Cys Pro Ser Gln Asn Leu  
35 40 45

Lys Asn Ser Glu Met Glu Asn Glu Asn Asp Lys Ile Val Pro Lys Ala  
50 55 60

Thr Ala Ser Leu Pro Glu Ala Glu Glu Leu Ile Ala Pro Gly Thr Pro

65

70

75

80

Ile Gln Phe Asp Ile Val Leu Pro Ala Thr Glu Phe Leu Asp Gln Asn  
                     85                    90                    95

Arg Gly Ser Arg Arg Thr Asn Pro Phe Gly Glu  
                     100                    105

&lt;210&gt; 1875

&lt;211&gt; 84

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (33)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (34)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1875

Gly Glu Glu Ala Cys Phe Ala Val Gly Ser Leu Val Leu Ala Arg Ser  
   1                    5                    10                    15

Leu Arg Val Cys Thr Gly Gly Thr Leu Pro Leu Pro Ala Pro Phe Leu  
                     20                    25                    30

Xaa Xaa Pro Val Gly Asn Ile His Leu Phe Met Pro Val Cys Cys Met  
                     35                    40                    45

Gln Ala Phe Trp Leu Pro Thr Leu Gln Gln Asn Glu Leu His Gln Leu  
                     50                    55                    60

Leu Ser Ala Asp Ser Ala His Arg Glu Ser Trp Ser His Ser Leu Phe  
   65                    70                    75                    80

Cys Phe Ala Leu

&lt;210&gt; 1876

&lt;211&gt; 65

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

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<400> 1876  
Gln Trp Gly Phe Val Xaa Asp Lys Met Ala Met Ala Gly Arg Val Xaa  
1 5 10 15

Pro Pro Ser Tyr Asp Glu Arg Pro Phe His Arg Pro Val Thr Glu Leu  
20 25 30

Arg Glu Asp Lys Xaa Ser Glu Xaa Xaa Gly Pro Ala Ser Leu Leu Leu  
35 40 45

Thr Arg Pro Val Pro Lys Lys Tyr Val Phe Gln Asn Ala Leu Asn Leu  
50 55 60

Asn  
65

<210> 1877  
<211> 58  
<212> PRT  
<213> Homo sapiens

<220>  
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<223> Xaa equals any of the naturally occurring L-amino acids

<400> 1877

Arg Ala Pro Pro Gly Gln Xaa Gly Gly Asp His Gln Asp Phe Ile Gln  
1 5 10 15

Gly Gly Arg Asp Gln Glu Ile Lys Pro Pro Thr Leu Ser Val His Thr  
20 25 30

Gly Leu Cys Asp Tyr Ile Asp Gln Pro Leu Lys Ile Lys Gln Xaa Leu  
35 40 45

Ile Cys Xaa Xaa Asp Lys Xaa Lys Ile Ser  
50 55

<210> 1878

<211> 45

<212> PRT

<213> Homo sapiens

<220>

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<220>

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&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (45)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1878

Ala Leu Asp Trp Leu Pro Glu Gly Leu Val Lys Ile His Ser His Pro  
1 5 10 15

Ala Gly Ser Gly Ser Asn Arg Gly Phe His Ser Phe Ile Ser Xaa Leu  
20 25 30

Ala Asp Lys Asp Pro Gly Xaa His Val Leu Leu Ile Xaa  
35 40 45

&lt;210&gt; 1879

&lt;211&gt; 54

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1879

Val Lys Met Ile Ile Gly Pro Lys Leu Thr Ala Leu Pro Lys Arg Gln  
1 5 10 15

Arg Ser Gln Asp Ile Gly Arg Ser Gly Ala Ala Leu Glu Thr Leu Lys  
20 25 30

Phe Thr Ser Met Arg Gly Leu Glu Cys Ser Leu Gly Arg Arg Ala Ser  
35 40 45

Thr Cys Ser Pro Gly Pro  
50

&lt;210&gt; 1880

&lt;211&gt; 77

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 1880

Ser Ala Cys Gly Ser Pro Gly Gly Asn Phe Pro Ser Pro Arg Gly Gly  
1 5 10 15

Ser Gly Val Ala Ser Met Glu Arg Ala Glu Ser Ser Ser Thr Glu Pro  
20 25 30

Ala Lys Ala Ile Lys Pro Ile Asp Gln Lys Ser Val His Gln Ile Cys

35

40

45

Ser Gly Gln Val Val Leu Ser Leu Ser Thr Ala Val Lys Glu Leu Val

50

55

60

Glu Asn Ser Leu Asp Ala Gly Ala Thr Asn Ile Asp Leu

65

70

75

&lt;210&gt; 1881

&lt;211&gt; 733

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1881

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tctcccggac tctgaggtc acatgcgtgg tgggtggacgt aagccacgaa gaccctgagg 180
tcaagttcaa ctggtacgtg gacggcgtgg aggtgcataa tgccaagaca aagccgcggg 240
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acaagagcag gtggcagcag gggaacgtct tctcatgctc cgtgatgcat gaggctctgc 660
acaaccacta cacgcagaag agcctctccc tgtctccggg taaatgagtg cgacggccgc 720
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&lt;210&gt; 1882

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; SITE

&lt;222&gt; (3)

&lt;223&gt; Xaa equals any of the naturally occurring L-amino acids

&lt;400&gt; 1882

Trp Ser Xaa Trp Ser

1

5

&lt;210&gt; 1883

&lt;211&gt; 86

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1883

gcgcctcgag atttccccga aatctagatt tccccgaaat gatttccccg aaatgatttc 60  
cccgaatat ctgccatctc aattag 86

&lt;210&gt; 1884

&lt;211&gt; 27

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1884

gcggcaagct ttttgcaaag cctaggc 27

&lt;210&gt; 1885

&lt;211&gt; 271

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1885

ctcgagatTT cccccgaaatc tagatttccc cgaaatgatt tccccgaaat gatttccccg 60  
aaatatctgc catctcaatt agtcagcaac catagtcccc cccctaactc cgcccatccc 120  
gcccctaact ccgcccagtt ccgcccattc tccgccccat ggctgactaa ttttttttat 180  
ttatgcagag gccgaggccg cctcggcctc tgagctattc cagaagtagt gaggaggctt 240  
ttttggaggc ctaggctttt gcaaaaagct t 271

&lt;210&gt; 1886

&lt;211&gt; 32

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1886

gcgctcgagg gatgacagcg atagaacccc gg 32

&lt;210&gt; 1887

&lt;211&gt; 31

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1887

gcgaagcttc gcgactcccc ggatccgcct c 31

&lt;210&gt; 1888

&lt;211&gt; 12

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1888

ggggactttc cc

12

&lt;210&gt; 1889

&lt;211&gt; 73

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1889

gcggcctcga ggggactttc ccggggactt tccggggact ttccgggact ttccatcctg 60  
ccatctcaat tag 73

&lt;210&gt; 1890

&lt;211&gt; 256

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 1890

ctcgagggga ctttcccggg gactttccgg ggactttccg ggactttcca tctgccatct 60  
caattagtca gcaaccatag tcccgcccct aactccgccc atcccgcccc taactccgcc 120  
cagttccgcc cattctccgc cccatggctg actaattttt tttatttatg cagaggccga 180  
ggccgcctcg gcctctgagc tattccagaa gtagtgagga ggcttttttg gaggcctagg 240  
cttttgcaaa aagctt 256

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05988

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : Please See Extra Sheet.

US CL : 536/23.1; 435/320.1; 325, 455, 68.1; 530/300, 350

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1; 435/320.1; 325, 455, 68.1; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

BIOSIS, MEDLINE, CAPLUS, BIOTECHDS, EMBASE, SEQ Search  
prostate, cancer, carcinoma, protein, peptide, gene, dna, transfect

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCHAAPVELD et al. The Mouse Gene Ptpfr Encoding the Leukocyte Common Antigen-Related Molecule LAR: Cloning, Characterization, and Chromosomal Localization. Genomics. 01 May 1995, Vol. 27, No. 1, pages 124-130, see entire document.	1-4, 21
X	DE PLAEN et al. Structure, chromosomal localization, and expression of 12 genes of the MAGE family. Immunogenetics. September 1994, Vol. 40, pages 360-369, especially page 363 and entire document.	1-4 and 21

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*G* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

15 MAY 2000

Date of mailing of the international search report

05 JUL 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

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Authorized officer

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PARALEGAL SPECIALIST  
CHEMICAL MATRIX

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05988

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ADAMS et al. Initial assessment of human gene diversity and expression patterns based upon 83 million nucleotides of cDNA sequence. Nature. 28 September 1995, Vol. 377, Supp, pages 3-17, see entire document.	1-4 and 21
X	HILLIER et al. Generation and analysis of 280,000 human expressed sequence tags. Genome Research. 1996, Vol. 6, No. 9, pages 807-828, see entire document.	1-4 and 21
X	KOHFELDT et al. Nidogen-2: A new basement membrane protein with diverse binding properties. J. Mol. Biol. 1998, Vol. 282, No. 1, pages 99-109, see entire document.	1-4 and 21

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05988

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-12, 14-16, 21 and SEQ ID NOS: 1-10

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest.

☐

No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/05988

## A. CLASSIFICATION OF SUBJECT MATTER: IPC (7):

C07H 21/04; C12N 15/63, 15/85, 15/09; C07K 5/00, 14/00; C12P 21/00

## BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-12, 14, 15, 16 and 21, drawn to cDNA, polypeptides, genes, a method of using the cDNA to make host cells comprising the cDNA, and a method of making the polypeptide.

Group II, claim(s) 13, drawn to an antibody specific for the polypeptides of Group I.

Group III, claim(s) 17, drawn to a therapeutic method of using the cDNA or the polypeptide of Group I.

Group IV, claim(s) 18 and 19, drawn to a diagnostic method of using the cDNA or polypeptide of Group I.

Group V, claim(s) 20, drawn to a method of using the polypeptide of Group I to isolate a binding partner.

Group VI, claim(s) 22, drawn to a method of using the cDNA of Group I to identify the activity of the polypeptide encoded by the cDNA.

Group VII, claim 23, drawn to the binding partner made by the method of Group V.

The inventions listed as Groups I-VII do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: PCT Rule 13.1 and Annex B do not provide for unity of invention between two or more different products or methods of use that share a special technical feature.

In addition, each Group detailed above reads on distinct Groups drawn to multiple SEQ ID Numbers. The sequences are distinct because they are unrelated sequences, and a further lack of unity is applied to each Group. The lack of unity is partially waived and the Applicant(s) must further elect up to 10 SEQ ID Numbers for examination in the elected Group detailed above.